

Eyad Masad, Ph.D., P.E., F.ASCE
Professor
Assistant Dean for Research and Graduate Studies
Direct of the Division of Texas Engineering Experiment Station in Qatar

Zachry Department of Civil Engineering Texas A&M University College Station Texas 77843-2135 United States Tel: + 1 979 845 8308 Fax: +1 979 845 0278 Email: emasad@civil.tamu.edu	Mechanical Engineering Program Texas A&M University at Qatar Education City PO Box 23874 Doha, Qatar Tel: +974 4423 0268 Fax: +974 4423 0011 Email: eyad.masad@qatar.tamu.edu
---	--

EDUCATION:

- Ph.D. Civil Engineering (May 1998) (Geomechanics and Infrastructure Materials)
Washington State University, Pullman, U.S.A
- M.S. Civil Engineering (May 1995)
Washington State University, Pullman, U.S.A
- B.S. Civil Engineering (January 1993), First Class Honors
University of Jordan, Amman, Jordan

NATIONALITY:

Citizen of the United States of America

Marital Status:

Married and have four children.

HONORS AND AWARDS:

- Dean's Meritorious Award, Texas A&M at Qatar, April 2011.
- Fellow of the American Society of Civil Engineers, December 2010.
- Runner Up for the W.J. Emmons Award for the Best Paper Published in the Journal of the Association of Asphalt Paving Technologists in the Year 2010.
- Best Research Poster Award, Second Annual Gas Processing Symposium, January 2010.
- Halliburton Professorship Award for Scholarly Excellence and Continuing Contributions to the Field of Engineering, Dwight Look College of Engineering, Texas A&M University, March 2009.
- Runner Up for the W.J. Emmons Award for the Best Paper Published in the Journal of the Association of Asphalt Paving Technologists in the Year 2007.
- Research Paper Nominated for the K. B. Woods Award of the Transportation Research Board, November 2007.
- The Texas Transportation Institute/Trinity New Researcher Award, January 2006.
- E.B. Snead I Professorship in Civil Engineering, Texas A&M University, October 2005.

- ConocoPhillips Faculty Fellow for Outstanding Performance and Overall Contributions to the Texas A&M Engineering Program, 2005-2006.
- Best Scientific Paper Award for the Year 2004, International Journal of Road Materials and Pavement Design, March 2005.
- Zachry Award for Excellence in Teaching, Department of Civil Engineering, Texas A&M University, June 2004.
- Outstanding Young Faculty Award, College of Engineering and Architecture, Washington State University, March 2002.
- Career Award, National Science Foundation, January 2002.
- W.J. Emmons Award for the Best Paper Published in the Journal of the Association of Asphalt Paving Technologists in the Year 2001.
- Leon Luck Award for the "Most Effective Professor" Department of Civil and Environmental Engineering, Washington State University, April 2001.
- Eisenhower Faculty Fellowship in Transportation Engineering, Federal Highway Administration, September 1999.
- Eisenhower Graduate Research Fellowship in Transportation Engineering, Federal Highway Administration, September 1997.
- Outstanding Teaching Assistant, Department of Civil and Environmental Engineering, Washington State University, Pullman, April 1997.
- Suksdorf Fellowship for Academic Achievements, College of Engineering, Washington State University, January 1997.
- Honorable Mention in the Student Paper Competition of Washington State University Chapter of the Scientific Research Society, Sigma XI, April 1996.
- First place in the Engineering Sciences Division of the Graduate and Professional Student Research Exposition, Washington State University, April 1996.
- Third place in the student paper competition of Washington State University Chapter of the Scientific Research Society, Sigma XI, April 1995.
- First place in the Engineering Sciences Division of the Graduate and Professional Student Research Exposition, Washington State University, April 1995.

LICENSES:

- Registered Professional Engineer, Texas #96368

PROFESSIONAL EXPERIENCE:

- Assistant Dean for Research and Graduate Studies, Texas A&M University at Qatar, Doha, Qatar (4/11-present).
- Director of the Division of Texas Engineering Experiment Station in Qatar (4/11-present).
- Professor, Mechanical Engineering Program, Texas A&M University at Qatar, Doha, Qatar (9/09 – present).
- Professor, Zachry Department of Civil Engineering, Texas A&M University, College Station, TX. (9/09 – present).
- Honorary Professor, University of Liverpool, UK. (10/11-present).
- Assistant Dean for Research and Graduate Studies, Texas A&M University at Qatar, Doha, Qatar (9/09-6/10).
- Associate Professor, Texas A&M University at Qatar, Doha, Qatar (7/07 – 8/09).
- Associate Professor, Zachry Department of Civil Engineering, Texas A&M University, College Station, TX. (9/05 – 8/09).

- Visiting Professor, Delft University of Technology, The Netherlands, (7/1/08-8/1/08).
- Assistant Professor, Department of Civil Engineering, Texas A&M University, College Station, TX. (1/03 – 8/05).
- Associate Research Engineer, Texas Transportation Institute, Texas A&M University, College Station, TX. (11/05 – present).
- Assistant Research Scientist, Texas Transportation Institute, Texas A&M University, College Station, TX. (1/03 – 8/05).
- Assistant Professor, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA. (8/98 – 12/02).
- Highway Research Engineer, Turner-Fairbank Highway Research Center, Federal Highway Administration, McLean, VA. (8/97 - 8/98).
- Instructor, Washington State University, Pullman, WA. (9/96 - 6/97).
- Research Assistant, Washington State University, Pullman, WA. (1/95 - 8/96).
- Teaching Assistant, Washington State University, Pullman, WA. (1/94 - 12/94).
- Design Engineer, Engineering Consortium Consulting Engineers, Amman, Jordan. (1/93 - 12/93).

AFFILIATIONS:

- American Society of Civil Engineers (ASCE), Fellow.
- Geo-Institute, American Society of Civil Engineers (ASCE).
- Transportation Research Board.
- The Association of Asphalt Paving Technologists.

MEDIA COVERAGE OF RESEARCH:

My research has appeared in several professional magazines and newspapers including:

- Focus, the magazine of the Federal Highway Administration.
- Asphalt, the magazine of the asphalt institute.
- HMAT, the magazine of the National Association of Asphalt Pavements.
- Stone, Sand & Gravel REVIEW, the magazine of the National Stone, Sand, and Gravel Association.
- Many newspapers including the Seattle Times and the Spokeman-Review.
- Several articles in Arabic and English newspapers in Qatar.

TEACHING:

University Courses (some selected topics are given for each course):

Washington State University

CE 215	Mechanics of Materials
CE 322	Transportation Engineering
CE 400	Highway Materials Engineering
CE 501	Advanced Topics in Transportation Engineering
CE 567	Advanced Characterization of Highway Materials
CE 580	Graduate Students Seminar

Texas A&M University

- CVEN 342 Materials of Construction
- CVEN 489 Materials Engineering for Civil Engineers
- CVEN 615 Structural Design of Pavements
- CVEN 653 Bituminous Materials
- CVEN 681 Materials Seminar
- CVEN 685 Directed Studies
- CVEN 689 Special Topics: Constitutive Modeling of Bituminous Materials

Texas A&M University at Qatar

- ENGR 111 Foundations of Engineering I
- ENGR 112 Foundations of Engineering II
- MEEN 221 Statics and Dynamics
- CVEN 305 Mechanical of Materials
- ENGR 482 Engineering Ethics

Teaching Evaluation (*Scale 1-5,**Joint Teaching)

Washington State University:

Semester and Course	Average Score
Fall 1996	
CE 215 Mechanics of Materials	4.57
Spring 1997	
CE 322 Transportation Engineering	4.60
Fall 1998	
CE 322 Transportation Engineering	4.82
Spring 1999	
CE 400 Highway Materials Engineering	4.76
Fall 1999	
CE 501 Advanced Topics in Transportation Engineering	4.71
Spring 2000	
CE 322 Transportation Engineering	4.56
CE 400 Highway Materials Engineering	4.66
Fall 2000	
CE 322 Transportation Engineering	4.75
CE 501 Advanced Topics in Transportation Engineering	4.97
Spring 2001	
CE 400 Highway Materials Engineering	4.77
Fall 2001	
CE 567 Advanced Characterization of Highway Materials	4.91
Spring 2002	
CE 322 Transportation Engineering	4.74
CE 400 Highway Materials Engineering	4.71
Fall 2002	
CE 322 Transportation Engineering	4.59

Texas A&M University

Semester	Course	Class Preparation	Assignments	Communication	Responsiveness	Academic Concern	Fair Grading	Availability	Environment
Spring 03	CVEN 342	4.54	4.21	4.42	4.62	4.72	4.49	4.40	4.45
Fall 03	CVEN 653	5.00	5.00	4.67	5.00	4.89	5.00	4.89	5.00
Spring 04	CVEN 342	4.53	4.34	4.59	4.76	4.89	4.76	4.68	4.77
Spring 04	CVEN 681	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fall 04	CVEN 489	4.38	4.56	4.50	4.81	4.75	4.44	4.50	4.63
Fall 04	CVEN 653	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Spring 05	CVEN 489	4.69	4.61	4.64	4.72	4.89	4.66	4.53	4.78
Spring 05	CVEN 681	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fall 05	CVEN 653	4.00	4.17	4.00	4.17	4.17	4.17	3.83	3.83
Fall 05	CVEN 489	4.92	4.76	4.88	4.96	4.92	4.76	4.84	4.88
Spring 06	CVEN 489	4.68	4.62	4.61	4.84	4.93	4.73	4.73	4.80
Fall 06	CVEN 653	4.57	4.43	4.43	4.71	4.43	4.57	4.71	4.57
Spring 07	CVEN 615	4.80	4.40	4.60	4.60	4.60	4.40	4.40	4.40
Spring 07	CVEN 681	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fall 07	ENGR 111	4.75	4.05	4.63	4.88	4.75	4.49	4.59	4.63
Spring 08	ENGR 112	4.38	4.33	4.70	4.65	4.80	4.35	4.28	4.70
Fall 08	ENGR 482	4.44	4.00	4.47	4.63	4.44	4.14	4.14	4.05
Spring 09	CVEN 689	4.60	4.40	4.60	4.80	4.40	4.40	4.60	4.80
Spring 09	MEEN 221	5.00	4.70	5.00	5.00	4.94	4.64	4.52	5.00

Fall 09	ENGR 482	4.69	4.20	4.61	4.74	4.69	4.20	4.20	4.76
Spring 10	ENGR 482**	4.10	3.70	4.60	4.30	4.30	3.50	3.60	4.20
Fall 10	ENGR 482**	4.36	4.18	4.47	4.53	4.42	4.33	4.37	4.52
Fall 10	MEEN 221	4.74	4.65	4.74	4.70	4.83	4.57	4.45	4.74
Spring 11	CVEN 305	4.21	4.25	4.29	4.39	4.50	4.32	4.25	4.39
Spring 11	ENGR 482**	3.91	3.70	4.00	4.09	4.26	4.13	4.00	4.00
Fall 11	ENGR 482**	3.77	3.62	4.23	3.69	4.00	3.46	3.85	3.69

Professional Short Courses:

- “Advanced Constitutive Modeling and Characterization of Asphaltic Materials,” College Station, Texas, Organized with Tom Scarpas, Niki Kringos and Dallas Little (9/09).
- “Asphalt Pavement Materials, Evaluation and Rehabilitation,” Doha, Qatar, Presented Jointly with Dr. Imad Al-Qadi (11/08).
- “Asphalt Pavement Materials and Construction,” Doha, Qatar, Presented Jointly with Dr. Imad Al-Qadi and Dr. Dallas Little, (5/08).
- “Structural Design of Pavements”, Houston, TX, Presented Jointly with Dr. Dallas Little, Dr. Dan Zollinger and Mr. Corey Zollinger. (3/06).
- “Aggregates for Pavements.” Federal Highway Administration, McLean, VA, Presented Jointly with Richard Meininger and Dallas Little. (8/05).
- “Primer on Bases for Sales/Marketing Personnel Including Basic Concepts and Applications from ICAR Research.” International Center for Aggregate Research Symposium, Austin, TX, Presented jointly with Dr. Dallas Little, and Dr. Erol Tutumluer (4/05).
- “State-of-the-Art of Aggregate Shape Analysis Using Imaging Techniques.” International Center for Aggregate Research Symposium, Denver, CO, Presented jointly with Dr. Erol Tutumluer (4/04).
- “Superpave Testing, Design, and Implementation,” a training course for the Washington Asphalt Paving Association and Washington State Department of Transportation. Taught jointly with Dr. Papagiannakis. (3/01).
- “Asphalt Technology for Technical Staff,” a training course for the Washington Asphalt Paving Association and Washington State Department of Transportation. Taught jointly with Dr. Papagiannakis. (2/00).
- “Superpave for Senior Managers and Engineers,” a training course for the Washington Asphalt Paving Association and Washington State Department of Transportation. Taught jointly with Dr. Papagiannakis. (2/00).
- Organized a course on "Flexible Pavement Design" GeoDenver Conference, attendance of 17, taught by Dr. T. Papagiannakis and Dr. Al-Qadi. (8/00).

Teaching Workshops:

- “Syllabus Workshop Resources”, The Center for Teaching Excellence, Texas A&M University at Qatar, Doha, Qatar (8/07).
- “Excellence in Civil Engineering Education (ExCEED)”, American Society of Civil Engineering, Flagstaff, Az. (8/03).

- “Engineering and Economic of Concrete Pavements: A seminar for Civil Engineering Educators”, American Concrete Pavement Association, Skokie, IL. (6/01).
- “Professor Training Course in Asphalt Technology”, National Center for Asphalt Technology (NCAT), Auburn, AL. (7/99).

RESEARCH:

<u>Sponsor</u>	<u>PI or Co-PI</u>	<u>Project Title</u>	<u>Status</u>	<u>Amount</u>	<u>Dates</u>
Qatar National Research Fund	<u>Dallas Little</u> Eyad Masad Emad Kassem Ghassan Chehab Imad Al-Qadi	Design and Evaluation of short-term and long-term performance Warm Asphalt Mixtures in the State of Qatar	Pending	\$1,019,811	
Qatar National Research Fund	<u>Eyad Masad</u> Rashid Abu Al-Rub	Multiscale Analysis of Hybrid Micro and Nano Composite Asphalt for Fracture Resistant and Sustainable Pavements	Pending	\$1,004,460	
Qatar National Research Fund	<u>Zachary Grasley</u> Rashid Abu Al-Rub Eyad Masad	Thermal Dilation and Internal Damage of Cryogenic Concrete Utilized for Direct Liquefied Natural Gas Containment	Active	\$1,004,624	1/15/12-1/14/15
Qatar National Research Fund	<u>Rashid Abu Al-Rub</u> Eyad Masad Silvia Caro-Sanchez Edgar Sanchez Silva	Modeling of Environmental-Assisted Degradation Processes in Asphalt Mixtures Using Micromechanical and Continuum Damage Theories	Active	\$992,990	1/15/12
Qatar National Research Fund	<u>Hassan Bashir</u> Colleen Murphy Eyad Masad Paolo Gardoni Ed Harris	Professional Ethics in an Inter-civilizational Perspective: Towards a Joint East-West Approach	Active	\$534,883	1/15/12
National Science Foundation	<u>Colleen Murphy</u> Hassan Bashir Charles Harris Paolo Gardoni Eyad Masad	US-Qatar Workshops: Engineering Ethics for a Globalized World	Active	\$58,960	6/1/11-5/31/13
Qatar Foundation	<u>Hassan Bashir</u> Eyad Masad	Support for Professional Ethics in a Globalized World	Complete	\$35,000	1/1/11-12/30/11
Qatar National Research Fund	<u>Eyad Masad</u> Rashid Abu Al-Rub Dallas Little Okan Sirin Imad Al-Qadi (Consultant)	Multi-scale Computational Models for Predicting Performance of Asphalt Pavements under Realistic Conditions	Active	\$971,047	09/1/09-8/31/12

Federal Highway Administration Western Research Institute	<u>Dallas Little</u> Eyad Masad Robert Lytton Amit Bhasin Amy Epps Martin Charles Glover	Asphalt Pavement Consortium	Active	\$5,466,000	4/1/07-3/31/12
Qatar National Research Fund	<u>Eyad Masad</u> Dallas Little	Innovative Design of Road Materials Using Physio-Chemical Properties, Imaging Techniques and Constitutive Modeling	Complete	\$380,000	5/12/08-5/31/11
Qatar Science and Technology Park	<u>Eyad Masad</u> Howard Hanley Hassan Bazzi Dallas Little	Pavement Subgrade Polymer Stabilization: A Novel Approach	Complete	\$386,705	5/1/09-5/31/11
Federal Highway Administration	<u>Eyad Masad</u> K. Rajagopal Tom Scarpas	Mathematical Models to Scientifically Explain the Compaction of Hot Mix Asphalt	Complete	\$480,000	10/1/07-8/31/10
Shell Company	<u>Eyad Masad</u> Dallas Little	Monitoring and Performance Evaluation of SEAM Sections in Ras Lafan	Complete	\$50,000	5/15/08 – 2/14/10
Federal Highway Administration Pine Instruments	<u>Eyad Masad</u>	Highway for Life Program on the Development of AIMS	Complete	\$40,000	4/1/08-3/31/09
Southwest University Transportation Center	<u>Eyad Masad</u> Rashid Abu Al-Rub Amit Bhasin	Improving the Performance of Asphalt Pavements through Developing a Predictive Model with Fundamental Material Properties	Complete	\$65,000	9/1/07-8/31/08
Southwest University Transportation Center	<u>Eyad Masad</u> Rashid Abu Al-Rub	Physically-based Model for Predicting the Susceptibility of Asphalt Pavements to Moisture-Induced Damage	Complete	\$65,000	9/1/08-8/31/09
EPSRC (United Kingdom)	<u>Gordon Airey</u> Eyad Masad and others	International Collaboration on Surface Energy, Adhesion, and Micro-Structural Characterization	Complete	\$330,000 (150,000 pounds)	10/1/07 – 4/30/09
TxDOT	<u>Eyad Masad</u> Robert Lytton Dallas Little	Surface Energy of Asphalt Binders and Aggregates	Complete	\$170,000	9/1/06-8/31/08
TxDOT	<u>Eyad Masad</u> Soheil Nazarian	Aggregate Resistance to Polishing and Its Relationship to Skid Resistance	Complete	\$365,000	9/1/06-8/31/09
FHWA TTI	<u>Eyad Masad</u>	Simulation, Imaging and Mechanics of Asphalt Pavements	Complete	\$610,000	2/1/03 – 12/31/08

NSF	<u>Eyad Masad</u>	CAREER: Microstructure Characterization and Modeling of Geomaterials	Complete	\$375,000	1/1/03-12/31/08
TxDOT	<u>Eyad Masad</u>	Using Imaging Techniques to Improve the Compaction of HMA	Complete	\$340,000	9/1/05-8/31/08
TxDOT	<u>Soheil Nazarian</u> <u>Eyad Masad</u>	Influence of Coarse Aggregate Properties on HMA Load Resistance	Complete	\$380,000	9/1/05-8/31/08
FHWA	<u>Eyad Masad</u>	Eisenhower Graduate Fellowship for Mr. Jonathan Howson	Complete	\$6,500	9/1/06-12/31/07
NSF Texas A&M University	<u>Dallas Little</u> <u>Eyad Masad</u> <u>Amy Epps Martin</u>	X-Ray Computed Tomography System for Microstructure Characterization, Analysis, And Modeling	Complete	\$500,000	9/1/04 – 8/31/07
Federal Highway Administration/We stern Research Institute	<u>Dallas Little</u> <u>Eyad Masad</u> <u>Robert Lytton</u>	Performance Validation of Asphalt Pavement Test Sections	Complete	\$400,000	2/18/04 – 12/1/06
TxDOT	<u>Eyad Masad</u>	Support for the Implementation of AIMS Equipment in TxDOT Operations	Complete	\$50,000	3/1/05-5/31/06
NCHRP-IDEA	<u>Eyad Masad</u>	A Methodology for Predicting Pavement Microtexture using Image Analysis of Aggregate Shape	Complete	\$45,000	10/1/05-10/1/06
International Center for Aggregate Research (ICAR)	<u>Eyad Masad</u> <u>Dallas Little</u>	Role of Aggregate Characteristics on Resistance to Load in HMA	Complete	\$200,000	12/15/03-5/1/06
TxDOT	<u>Robert Lytton</u> <u>Eyad Masad</u> <u>Dallas Little</u>	Application of Surface Energy Measurements to Evaluate Moisture Susceptibility of Asphalt and Aggregates	Complete	\$659,806	9/1/03-8/31/06
TxDOT	<u>Eyad Masad</u>	Pilot Implementation of Aggregate Imaging System (AIMS)	Complete	\$95,000	4/13/04-8/31/04
TxDOT	<u>Dan Zollinger</u> <u>Eyad Masad</u>	Use of Crushed Gravel in Concrete Paving	Complete	\$275,338	9/1/03-8/31/05
NSF	<u>Eyad Masad</u>	Research Experience for Undergraduates	Complete	\$12,000	1/1/04-12/31/05
Innovative Research Program, Civil Engineering, Texas A&M University	<u>Eyad Masad</u>	Probabilistic Model for HMA Permeability Based on X-ray CT Analysis of Air Voids	Complete	One year funding for a graduate student	9/1/03 – 8/31/04

NCHRP	<u>Eyad Masad</u> Joe Button Dallas Little Erol Tutumluuer	Test Methods for Characterizing Aggregate Shape, Texture, and Angularity	Complete	\$500,000	7/2/02-6/1/05
NSF Murdock Foundation WSU	<u>Eyad Masad</u> Hussain Zbib B. Muhunthan Stephen Antolovich	X-ray Computed Tomography System for the Modeling and Characterization of Materials with Microstructure	Complete	\$866,281	8/1/01 – 7/31/04
NSF	<u>B. Muhunthan</u> <u>Eyad Masad</u> Hussain Zbib	Experimental and Theoretical Investigation of Deformation in Granular Materials: A Micromechanics Approach	Complete	\$300,721	5/1/01 – 4/30/04
FHWA	<u>Eyad Masad</u>	Imaging and Mechanics of Asphalt Pavements	Complete	\$140,000	5/1/01 – 12/30/02
FHWA	<u>Eyad Masad</u>	Graduate Student Eisenhower Fellowship	Complete	\$55,000	1/1/01-12/30/02
FHWA/WSDOT	<u>Eyad Masad</u> Rafik Itani	Design of High Performance Concrete with Improved Permeability and Creep Properties	Complete	\$180,000	7/1/01-6/30/03
International Center for Aggregate Research (ICAR)	<u>Dallas Little</u> <u>Eyad Masad</u>	Evaluation of Aggregates Characteristics Affecting HMA Performance	Complete	\$385,000	9/1/00 – 5/1/03
NCHRP-IDEA	<u>Eyad Masad</u> Tom Papagiannakis	The Development of a Computer Controlled Image Analysis System for Measuring Aggregate Properties	Complete	\$76,000 + \$25,000 WSU	1/1/01-10/30/02
Advanced Resin Systems, Inc.	<u>Eyad Masad</u> Tom Papagiannakis	Improving Asphalt Binder Properties Using Furfural	Complete	\$30,379	1/1/01-12/30/01
NSF	<u>Tom Papagiannakis</u> <u>Eyad Masad</u> B. Muhunthan	Acquisition of Specialized Equipment for the Dynamic Testing of Geomaterials	Complete	\$50,000	9/1/00-8/31/01
Idaho Department of Transportation	<u>Fouad Bayomy</u> <u>Eyad Masad</u>	Development and Performance Prediction of Idaho Superpave Mixes	Complete	\$215,156	1/1/00 – 5/31/01
FHWA/National Highway Institute	<u>Eyad Masad</u>	Eisenhower Faculty Fellowship in Transportation Engineering	Complete	\$1,800	10/1/99 – 1/20/00
WSDOT	<u>Eyad Masad</u>	Implementation of High Performance Concrete in Washington State	Complete	\$118,740	6/1/99 - 12/31/01
APAW/WSDOT	<u>Eyad Masad</u> T. Papagiannakis	Expanding the Superpave Facility at WSU	Complete	\$102,500	8/1/99-8/1/01

FHWA/Asphalt Institute	<u>Eyad Masad</u>	Correlation of Aggregate Shape Properties to Asphalt Mix Performance	Complete	\$38,464	2/1/00 - 1/31/01
FHWA/Asphalt Institute	<u>Eyad Masad</u> Mike Anderson	Optimizing Performance Testing and Compaction Procedures of Asphalt Concrete	Complete	\$94,590	5/1/99 - 1/31/01
FHWA/Asphalt Institute	<u>Eyad Masad</u>	Mechanistic modeling of asphalt film in pavements	Complete	\$52,756	10/31/98 - 8/31/00

Test Methods and Equipment:

I have developed the Aggregate Imaging System (AIMS). AIMS is a computer controlled system that employs imaging analysis techniques for measuring the shape characteristics of aggregate particles. The system is currently being used by the Federal Highway Administration, several State Highway Agencies in the United States, and many universities in the United States and internationally.

Publications:

Books and Special Publications

1. *Applications of Advanced Models to Understand Behavior and Performance of Asphalt Mixtures*; Transportation Research Circular, Transportation Research Board, Circular Number E-C161. Editor: E. Masad, (2012), 77 pp.
2. *Pavement Design and Materials*, John Wiley and Sons, Inc., Hoboken, NJ. T. Authors: Papagiannakis and E. Masad. (2007), 552 pp. ISBN 978-0-471-21461-8
3. *Efficient Pavements and Transportation Systems: Characterization, Mechanism, Simulation, and Modeling, Proceedings of the fourth International Gulf Conference on Roads*,., Editors, I. Al-Qadi, T. Sayed, N. Alnuimi and E. Masad, Taylor and Francis Publishing Company, (2008).
4. *Moisture Induced Damage of Asphalt Mixes: Characterization, Visualization and Simulation of the Fundamental Processes*, Vol. 9, No. 2, International Journal of Pavement Engineering, Editors: Masad, E. and Kringos, N. (2008)
5. *Analysis of Asphalt Pavements and Systems: Engineering Methods, Geotechnical Special Publication No. 176*, Geo-Institute, American Society of Civil Engineers. Editors: Wang, L. and Masad, E. (2007), 173 pp.
6. *Towards a Mechanistic Approach for the Analysis and Design of Asphalt Pavements*, International Journal of Geomechanics, Vol. 7, No. 2, American Society of Civil Engineering, Editors: Masad, E. and Scarpas, A. (2007).
7. *Advances in Asphalt Pavements*, International Journal of Road Materials and Pavement Design, Vol. 8, No. 2, Editors: Birgisson, B. and Masad, E. (2007), 231 p.
8. *Asphalt Concrete: Simulation, Modeling, and Experimental Characterization, Geotechnical Special Publication 146*, Geo-Institute, American Society of Civil Engineers. Editors: Masad, E., Panoskaltsis, V., and Wang, L. (2006), 160 p.

9. *Recent Advances in Material Characterization and Modeling of Pavement Systems*, Geotechnical Special Publication Number 123, Geo-Institute, American Society of Civil Engineers. Editors: Tutumluer, E., Masad, E., Najjar, Y. (2004), 241 p.
10. *Applications of Imaging Technologies in Civil Engineering Materials*, Journal of Computing in Civil Engineering, Vol. 18, No. 1, American Society of Civil Engineers, Editors: Masad, E., and Sivakumar, K., (2004).
11. *Micromechanical Characterization and Constitutive Modeling of Asphalt Mixes*, Journal of Materials in Civil Engineering, Vol. 16, No. 2, American Society of Civil Engineers, Editors: Masad, E., and Mohammad, L., (2004).

Refereed Journal Papers

1. Iyengar, S., Masad, E., Rodriguez, A., Bazzi, H., Little, D., and Hanley, H. (2012). "Pavement Subgrade Stabilization Using Polymers: Characterization and Performance," *Journal of Materials in Civil Engineering*, ASCE (Accepted for Publication).
2. Darabi, M., Abu Al-Rub, R., Masad, E., Huang, C.W., and Little, D. (2012). "A Modified Viscoplastic Model to Predict the Permanent Deformation of Asphaltic Materials Under Cyclic Compression Loading at High Temperatures," *International Journal of Plasticity*, **Vol. 35, pp. 100-134**.
3. Darabi, M., Abu Al-Rub, R., Masad, E., and Little, D. (2012). "A Thermodynamic Framework for Constitutive Modeling of Time- and Rate-Dependent Materials. Part II: Numerical Aspects and Application to Asphalt Concrete," *International Journal of Plasticity*, **Vol. 35, pp. 67-99**.
4. Darabi, M.K., Abu Al-Rub, R.K., Masad, E.A., Little, D., (2012). "Thermodynamic based model for coupling viscoelastic, viscoplastic, and viscodamage constitutive behavior of asphalt mixtures," *International Journal for Numerical and Analytical Methods in Geomechanics* (in press).
5. Kassem, E., Scullion, T., Masad, E., and Chowdhury, A. (2012). "Comprehensive Evaluation of Compaction of Asphalt Pavements and a Practical Approach for Density Predictions," Transportation Research Record: *Journal of the Transportation Research Board* (accepted).
6. Howson, J., Masad, E., Little, D., and Kassem, E. (2012). "Relationship between Bond Energy and Total Work of Fracture for Asphalt Binder-Aggregate Systems," *International Journal of Road Materials and Pavement Design* (in press).
7. Mostafa A Elseifi, M.A., Mohammad L.N, Kassem, E., Ying, H., and Masad, E., (2012). "Quantification of Damage in the Dynamic Complex Modulus and Flow Number Tests Using X-Ray Computed Tomography." *Journal of Materials in Civil Engineering*, ASCE (in press).
8. You, T., Abu Al-Rub, R.K., Darabi, M.K., Masad, E.A, Little, D., (2012) "Three-dimensional microstructural modeling of asphalt concrete using a unified viscoelastic-viscoplastic-viscodamage model," *Construction & Building Materials*, **Vol. 28, No. 1, pp. 531-548**.
9. Abu Al-Rub, R.K., Huang, C.W., Darabi, M.K., Masad, E.A, Little, D., (2012). "Comparing finite element and constitutive modeling techniques for predicting rutting of asphalt pavements," *International Journal of Pavement Engineering* (in press).

10. Kassem, E., Grasley, Z., and Masad, E. (2011). "Analysis of Viscoelastic Poisson's Ratio of Asphalt Mixtures," *International Journal of Geomechanics*, ASCE, (in press).
11. Kassem, E., Masad, E., Lytton, R., and Chowdhury, A., (2011). "Influence of Air Voids on Mechanical Properties of Asphalt Mixtures." *International Journal of Road Materials and Pavement Design*, **Vol. 12, No. 3, pp. 493-524.**
12. Mogawer, W. S., Austerman, A. J., Kassem, E., and Masad, E., (2011). "Moisture Damage Characteristics of Warm Mix Asphalt Mixtures." *Journal of the Association of Asphalt Paving Technologists*, **Vol. 80, pp. 491-520**
13. Masad, E., Kassem, E., and Little, D. (2011). "Characterization of Asphalt Pavement Materials in the State of Qatar: A Case Study," *International Journal of Road Materials and Pavement Design*, **Vol. 12, No. 4.**
14. Caro, S., Masad, E., Sanchez-Silva, M. and Little, D., (2011). "Stochastic Micromechanical Modeling of Asphalt Mixtures Subjected to Moisture Diffusion Processes," *International Journal for Numerical and Analytical Methods in Geomechanics*, **Vol. 35, No. 10, pp. 1079-1097.**
15. Abu Al-Rub, R.K., You, T., Masad, E.A, Little, D., (2011). "Mesomechanical modeling of the thermo-viscoelastic, thermo-viscoplastic, and thermo-viscodamage response of asphalt concrete," *International Journal of Advances in Engineering Sciences and Applied Mathematics*, **Vol. 3, No. 1-4, pp. 14-33.**
16. Huang, C. W, Abu Al-Rub, R., Masad, E., and Little, D. (2011). "Three-Dimensional Simulations of Asphalt Pavement Deformation Using a Nonlinear Viscoelastic and Viscoplastic Model," *Journal of Materials in Civil Engineering*, ASCE, **Vol. 23, No. 1, pp. 56-68**
17. Huang, C.W., Abu Al-Rub, R.K., Masad, E.A, Little, D., Airey, G., (2011). "Numerical implementation and validation of a nonlinear-viscoelastic and viscoplastic model for asphalt concrete mixes," *International Journal of Pavement Engineering*, **Vol. 12, No. 4, pp. 433-447, 2011.**
18. Howson, J., Masad, E., Bhasin, A., Little, D., and Lytton, R. (2011). "Comprehensive Analysis of Surface Free Energy of Asphalts and Aggregates and the Effects of Changes in pH," *Construction and Building Materials*, **Vol. 25, No. 5, pp. 2554-2564.**
19. Darabi, M., Abu Al-Rub, R., Masad, E., Huang, C.W., Little, D. (2011). "A Thermo-Viscoelastic-Viscoplastic-Viscodamage Constitutive Model for Asphaltic Materials," *International Journal of Solids and Structures*, **Vol. 48, pp. 191-207.**
20. Abu Al-Rub, R.K., Darabi, M.K., You, T., Masad, E.A, Little, D.N., (2011). "A unified continuum damage mechanics model for predicting the mechanical response of asphalt mixtures and pavements," *International Journal of Roads and Airports*, **Vol. 1, No. 1, pp. 68-84.**
21. Abu Al-Rub, R. Darabi, M., Little, D., and Masad, E. (2010). "A micro-damage healing model that improves prediction of fatigue life in asphalt mixes," *International Journal of Engineering Science*, **Vol. 48, No. 11, pp. 966-990.**
22. Abu Al-Rub, R., Darabi, M., Masad, E., (2010). "A straightforward numerical technique for finite element implementation of nonlocal gradient-dependent continuum damage mechanics theories," *International Journal of Theoretical and Applied Multiscale Mechanics*, **Vol. 1, No. 4, pp. 352-385.**

23. Mahmoud, E., Gates, L., Masad, E., Erdogafan, S., and Garboczi, E. (2010). "Comprehensive Evaluation of AIMS Texture, Angularity, and Dimension Measurements," *Journal of Materials in Civil Engineering*, ASCE, **Vol. 22, No. 4, pp. 369-379**.
24. Caro, S., Masad, E., Bhasin, A., and Little, D. (2010). "Micromechanical Modeling of the Influence of Material Properties on Moisture-Induced Damage in Asphalt Mixtures," *Construction and Building Materials*, **Vol. 24, No. 7, pp. 1184-1192**.
25. Masad, L., Masad, E., Blank, L., and Enjeti, P. (2010). "Technology-Based Support for Quality Teaching and Learning at TAMUQ," *International Journal of Emerging Technologies in Learning*, **Vol. 5, No. 1, 51-57**.
26. Arambula, E., Garboczi, E., Masad, E., and Kassem, E. (2010). "Numerical Analysis of Moisture Vapor in Asphalt Mixtures Using Digital Images," *Materials and Structures*, **Vol. 43, No. 7, pp. 897-911**.
27. Arambula, E., Caro, S., and Masad, E. (2010). "Experimental Measurement and Numerical Simulation of Water Vapor Diffusion through Asphalt Pavement Materials," *Journal of Materials in Civil Engineering*, ASCE, **Vol. 22, No. 6, pp. 588-598**.
28. Mahmoud, E., and Masad, E. (2010). "A Probabilistic Model for Predicting Resistance of Aggregates in Asphalt Mixes to Fracture," *International Journal of Road Materials and Pavement Design*, **Vol. 11, No. 2, pp. 335-360**.
29. Mahmoud, E., Masad, E., Nazarian, S., and Abdalla, I. (2010). "Modeling and Experimental Evaluation of the Influence of Aggregate Blending on Asphalt Mixture Strength," *In Transportation Research Record 2180, Journal of the Transportation Research Board*, **pp. 48-57**.
30. Mahmoud, E., Masad, E., Nazarian, S. (2010). "Discrete Element Analysis of the Influence of Aggregate properties and Internal Structure on Fracture in Asphalt Mixtures," *Journal of Materials in Civil Engineering*, ASCE, **Vol. 22, No. 1, pp. 10-20**.
31. Masad, E., Howson, J., Bhasin, A., Caro, S., and Little, D. (2010). "Relationship between Ideal and Practical Work of Fracture: Background and Experimental Results," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 79**.
32. Caro, S., Masad, E., Bhasin, A., Little, D., Sanchez-Silva, M. (2010). "Probabilistic Modeling of the Effect of Air Voids on the Mechanical Performance of Asphalt Mixtures Subjected to Moisture Diffusion," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 79**.
33. Caro, S., Masad, E., Bhasin, A., Little, D. (2010). "Coupled Micromechanical Model of Moisture-Induced Damage in Asphalt Mixtures", *Journal of Materials in Civil Engineering*, ASCE, **Vol. 22, No. 4, pp. 380-388**.
34. Saadeh, S. and Masad, E. (2010). "On the Relationship of Microstructure Properties of Asphalt Mixtures to their Constitutive Behavior," *International Journal of Materials and Structural Integrity*, **Vol. 4, No. 2, pp. 186-214**.
35. Bhasin, A., Castelo Branco, V., Masad, E., and Little, D. (2009). "Quantitative Comparison of Energy Methods to Characterize fatigue in Asphalt Materials," *Journal of Materials in Civil Engineering*, ASCE, **Vol. 21, No. 2, pp. 83-92**.

36. Rezaie, A., Masad, E., Chowdhury, A., Harris, P. (2009). "Predicting Asphalt Mixture Skid Resistance by Aggregate Characteristics and Gradation," *In Transportation Research Record 2104, Journal of the Transportation Research Board*, **pp. 24-33.**
37. Masad, E., Koneru, S., Rajagopal, K., Scarpas, T., and Kasbergen, C. (2009). "Modeling of Asphalt Mixture Laboratory and Field Compaction Using a Thermodynamics Framework," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 78, pp. 639-678**
38. Masad, E., Huang, C.W., D'Angelo, J., and Little, D. (2009). "Characterization of Asphalt Binder Resistance to Permanent Deformation Based on Nonlinear Viscoelastic Analysis of Multiple Stress Creep Recovery (MSCR) Test," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 78, pp. 535-566**
39. Huang, B., Chen, X., Shu, X., Masad, E., and Mahmoud, E. (2009). "Effects of Coarse Aggregate Angularity and Asphalt Binder on Laboratory-Measured Permanent Deformation Properties of HMA," *International Journal of Pavement Engineering*, **Vol. 10, No. 1, pp. 19-28.**
40. Kassem, E., Masad, E., Bulut, R., Lytton, R. (2009). "Measurements of the Moisture Diffusion Coefficient of Asphalt Mixtures and its Relationship to Mixture Composition," *International Journal of Pavement Engineering*, **Vol. 10, No. 6, pp. 389-399.**
41. Ravindran, P., Krishnan, J.M., Masad, E., and Rajagopal, K. (2009). "Modeling Sand-Asphalt Mixtures within a Thermodynamic Framework: Theory and Application to Torsion Experiments," *International Journal of Pavement Engineering*, **Vol. 10, No. 2, pp. 115-131.**
42. Koneru, S., Masad, E., and Rajagopal, K. (2008). "Modeling of Asphalt Mix Compaction Using a Thermomechanical Material Model," *Mechanics of Materials*, **Vol. 40, No. 10, pp. 846-864.**
43. Castelo Branco, V., Masad, E., Bhasin, A., and Little, D. (2008). "Fatigue Analysis of Asphalt Mixtures Independent of Mode of Loading," *In Transportation Research Record 2057, Journal of the Transportation Research Board*, **pp. 149-156.**
44. Caro, S., Masad, E., Airey, G., Bhasin, A., and Little, D. (2008). "Probabilistic Analysis of Fracture in Asphalt Mixtures Caused by Moisture Damage," *In Transportation Research Record 2057, Journal of the Transportation Research Board*, **pp. 28-36.**
45. Ashtiani, R., Little, D., and Masad, E. (2008). "Material Factors that Influence Anisotropic Behavior of Aggregate Bases," *In Transportation Research Record 2059, Journal of the Transportation Research Board*, **pp. 20-30.**
46. Kassem, E., Masad, E., and Chowdhury, A., Claros, G. (2008). "Influence of Field Compaction Pattern on Pavement Uniformity," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 77, pp. 257-298**
47. Arambula, E., Masad, E., Epps Martin, A., and Lytton, R. (2008). "Suitability of Dynamic and Relaxation Tests for the Evaluation of Moisture Susceptibility of Asphalt Mixtures," *Journal of Testing and Evaluation*, **Vol. 36, No. 2, pp. 150-164**
48. Kassem, E., Walubita, L., Scullion, T., Masad, E., and Wimsatt, A. (2008). "Evaluation of Full Depth Asphalt Pavement Construction Using X-Ray Computed Tomography and Ground

- Penetrating Radar,” *Journal of Performance of Constructed Facilities*, ASCE, **Vol. 22, No. 6**, pp. **408-416**.
49. Masad, E., Huang, C. W., Airey, G., and Muliana, A. (2008). “Nonlinear Viscoelastic Analysis of Unaged and Aged Asphalt Binders,” *Construction and Building Materials*, **Vol. 22, No. 11**, pp. **2170-2179**.
 50. Caro, S., Masad, E., Bhasin, A., and Little, D. (2008). “Moisture Susceptibility of Asphalt Mixtures, Part 1: Mechanisms,” *International Journal of Pavement Engineering*, **Vol. 9, No. 2**, pp. **81-98**.
 51. Caro, S., Masad, E., Bhasin, A., and Little, D. (2008). “Moisture Susceptibility of Asphalt Mixtures, Part 2: Characterization and Modeling,” *International Journal of Pavement Engineering*, **Vol. 9, No. 2**, pp. **99-114**.
 52. Huang, C. W., Masad, E., Muliana, A., and Bahia, H. (2007). “Nonlinearly Viscoelastic Analysis of Asphalt Mixes Subjected to Shear Loading,” *Mechanics of Time Dependent Materials*, **Vol. 11, No. 2**, pp. **91-110**.
 53. Luce, A., Mahmoud, E., Masad, E., and Chowdhury, A. (2007). “Relationship of Aggregate Texture to Asphalt Pavement Skid Resistance,” *Journal of Testing and Evaluation*, American Society of Testing and Materials (ASTM), **Vol. 35, No. 6**, pp. **578-588**.
 54. Masad, E., Castelo Branco, V., Little, D., and Lytton, R. (2008). “A Unified Method for the Analysis of Controlled-Strain and Controlled-Stress Fatigue Testing,” *International Journal of Pavement Engineering*, **Vol. 9, No. 4**, pp. **233-246**.
 55. Masad, E., Al-Omari, A., and Chen, H. C. (2007). “Computations of Permeability Tensor Coefficients and Anisotropy of Hot Mix Asphalt Based on Microstructure Simulation of Fluid Flow,” *Computational Materials Science*, **Vol. 40, No. 4**, pp. **449 – 459**.
 56. Masad, E., and Scarpas, T. (2007). “Toward a Mechanistic Approach for Analysis and Design of Asphalt Pavements,” *International Journal of Geomechanics*, ASCE, **Vol. 7, No. 2**, pp. **81-82**.
 57. Mahmoud, E., and Masad, E. (2007). “Experimental Methods for the Evaluation of Aggregate Resistance to Polishing, Abrasion and Breakage,” *Journal of Materials in Civil Engineering*, ASCE, **Vol. 19, No. 11**, pp. **977-985**.
 58. Saadeh, S., Masad, E., Little, D. (2007). “Characterization of Hot Mix Asphalt Using Anisotropic Damage Viscoelastic-Viscoplastic Model and Repeated Loading,” *Journal of Materials in Civil Engineering*, ASCE, **Vol. 19, No. 10**, pp. **912-924**.
 59. Masad, E., Arambula, E., Ketchem, R., Abbas, A., and Epps Martin, A. (2007). “Nondestructive Measurements of Moisture Transport in Asphalt Mixtures,” *Journal of the Association of Asphalt Paving Technologists*, **Vol. 76**, pp. **919-952**
 60. Arambula, E., Masad, E., and Epps Martin, A. (2007). “The Influence of Air Void Distribution on the Moisture Susceptibility of Asphalt Mixes,” *Journal of Materials in Civil Engineering*, ASCE, **Vol. 19, No. 8**, pp. **655-664**.

61. Arambula, E., Masad, E., and Epps Martin, A. (2007). "Moisture Susceptibility of Asphalt Mixtures with Known Field Performance Using Dynamic Analysis and Crack Growth Model," *In Transportation Research Record 2001, Journal of the Transportation Research Board*, **pp. 20-28**.
62. Kutay, E. M., Aydilek, M., Masad, E. (2007). "Estimation of Directional Permeability of HMA Based on Numerical Simulation of Micro-scale Water Flow," *In Transportation Research Record 2001, Journal of the Transportation Research Board*, **pp. 29-36**.
63. Ashtiani, R., Little, D., and Masad, E. (2007). "Evaluation of the Impact of Fines on the Performance of Lightly Cement Stabilized Aggregate Systems," *In Transportation Research Record 2026, Journal of the Transportation Research Board*, **pp. 81-88**.
64. Bhasin, A., Howson, J., Masad, E., Little, D., and Lytton, R. (2007). "Effect of Modification Processes on Bond Energy of Asphalt Binders," *In Transportation Research Record 2001, Journal of the Transportation Research Board*, **pp 29-37**.
65. Bhasin, A., Little, D., Vasconcelos, K., Masad, E. (2007). "Use of Surface Free Energy to Identify Moisture Sensitivity of Materials for Asphalt Mixes," *In Transportation Research Record 2001, Journal of the Transportation Research Board*, **pp 37-45**.
66. Birgisson, B. and Masad, E. (2007). "Advances in Asphalt Pavements," *International Journal of Road Materials and Pavement Design*, **Vol. 8, No. 2, pp. 137-138**.
67. Masad, E., Al-Rousan, T., Bathina, M., McGahan, J., and Spiegelman, C. (2007). "Analysis of Aggregate Shape Characteristics and its Relationship to Hot Mix Asphalt Performance," *International Journal of Road Materials and Pavement Design*, **Vol. 8, No. 2, pp. 317-350**.
68. Masad, E., Dessouky, S., and Little, D. (2007). "Development of an Elasto-Visco-Plastic Microstructural-Based Continuum Model to Predict Permanent Deformation in Hot Mix Asphalt," *International Journal of Geomechanics, ASCE*, **Vol. 7, No. 2, pp. 119-130**.
69. Abbas, A., Masad, E., Papagiannakis, T., and Harman, T. (2007). "Micromechanical Modeling of the Viscoelastic Behavior of Asphalt Mixtures Using the Discrete Element Method," *International Journal of Geomechanics, ASCE*, **Vol. 7, No. 2, pp. 131-139**.
70. Kutay, E. M., Aydilek, M., Masad, E., and Harman, T. (2007). "Evaluation of Hydraulic Conductivity Anisotropy in Asphalt Specimens," *International Journal of Pavement Engineering*, **Vol. 8, No. 1, pp. 29-43**.
71. Al-Rousan, T., Masad, E., Tutumluer, E., and Pan, T. (2007). "Evaluation of Image Analysis Techniques for Quantifying Aggregate Shape Characteristics," *Journal of Construction and Building Materials*, **Vol. 21, No. 5, pp. 978-990**.
72. Kutay, E. M., Aydilek, M., Masad, E. (2006). "Boundary Conditions and Laboratory Validation of Lattice Boltzmann Method for Modeling Pore-Scale Flow in Granular Materials," *Computers and Geotechnics*, **Vol. 33, pp. 381-395**.
73. Masad, E., Al-Omari, A., and Lytton, R. (2006). "Simple Method for Predicting Laboratory and Field Permeability of Hot Mix Asphalt," *In Transportation Research Record 1970, Journal of the Transportation Research Board*, **pp. 55-63**.

74. Kassem, E., Masad, E., Bulut, R., and Lytton, R. (2006). "Measurements of Moisture Suction and Diffusion Coefficient in Hot Mix Asphalt and their Relationships to Moisture Damage," *In Transportation Research Record 1970, Journal of the Transportation Research Board*, pp. 45-54.
75. Masad, E., Zollinger, C., Bulut, R., Little, D., and Lytton, R. (2006). "Characterization of HMA Moisture Damage Using Surface Energy and Fracture Properties," *Journal of the Association of Asphalt Paving Technologists*, Vol. 75, pp. 713-748.
76. Dessouky, S., Masad, E., and Little, D. (2006). "Mechanistic Modeling of Permanent Deformation in Asphalt Mixes with the Effect of Aggregate Characteristics," *Journal of the Association of Asphalt Paving Technologists*, Vol. 75, pp. 535-571.
77. Gatchalian, D., Masad, E., Chowdhury, A., and Little, D. (2006). "Characterization of Aggregate Resistance to Degradation in Stone Matrix Asphalt Mixtures," *In Transportation Research Record 1962, Journal of the Transportation Research Board*, pp. 55-63.
78. Bhasin, A., Masad, E., Little, D., and Lytton, R. (2006). "Limits on Adhesive Bond Energy for Improved Resistance of Hot Mix Asphalt to Moisture Damage," *In Transportation Research Record 1970, Journal of the Transportation Research Board*, pp. 3-13.
79. Bhasin, A., Button, J., Chowdhury, A., and Masad, E. (2006). "Selection of Optimum Gravel Aggregate Size to Resist Permanent Deformation in Hot Mix Asphalt," *In Transportation Research Record 1952, Journal of the Transportation Research Board*, pp. 39-47.
80. Dessouky, S., Masad, E., Little, D., and Zbib, H. (2006). "Finite Element Analysis of Hot Mix Asphalt Microstructure Using Effective Local Material Properties and Strain Gradient Elasticity," *Journal of Engineering Mechanics*, American Society of Civil Engineers, Vol. 132, No. 2, pp. 158-171.
81. Masad, S., Little, D., and Masad, E. (2006). "Analysis of Flexible Pavement Response and Performance Using Isotropic and Anisotropic Material Properties," *Journal of Transportation Engineering*, American Society of Civil Engineers, Vol. 132, No. 4, pp. 342-349.
82. Masad, E., Castelblanco, A., and Birgisson, B. (2006). "HMA Moisture Damage as a Function of Air Void Size Distribution, Pore Pressure and Bond Energy," *Journal of Testing and Evaluation*, American Society for Testing and Materials, Vol. 34, No. 1, pp. 15-23.
83. Pradeep, H., Krishnan, M., Rajagopal, K., Little, D., and Masad, E. (2005). "Modeling Constant Displacement Rate Experiments of Asphalt Concrete Using a Thermodynamic Framework," *International Journal of Pavement Engineering*, Vol. 6, No. 4, pp. 241-256.
84. Kim, S. H., Little, D., Masad, E., and Lytton, R. (2005). "Estimation of Level of Anisotropy in Unbound Granular Layers Considering Aggregate Physical Properties," *International Journal of Pavement Engineering*, Vol. 6, No. 4, pp. 217-227
85. Masad, E., Tashman, L., Little, D., and Zbib, H. (2005). "Viscoplastic Modeling of Asphalt Mixes with the Effects of Anisotropy, Damage and Aggregate Characteristics," *Journal of Mechanics of Materials*, Vol. 37, pp. 1242-1256.

86. Abbas, A., Masad, E., Papagiannakis, T., and Shenoy, A. (2005). "Modeling of Asphalt Mastic Stiffness Using Discrete Elements and Micromechanics Analysis," *International Journal of Pavement Engineering*, **Vol. 6, No. 2, pp. 137-146.**
87. Al-Rousan, T., Masad, E., Myers, L., and Spiegelman, C. (2005). "A New Methodology for Shape Classification of Aggregates," *In Transportation Research Record 1913, Journal of the Transportation Research Board*, **pp. 11-23.**
88. Masad, E., Saadeh, S., Al-Rousan, T., Garboczi, E., Little, D. (2005). "Computations Of Particle Surface Characteristics Using Optical and X-Ray CT Images," *Journal of Computational Materials Science*, **Vol. 34, No. 4, pp. 406-424.**
89. Krishnan, M., Rajagopal, K., Masad, E., and Little, D. (2005). "A Thermomechanical Framework for the Constitutive Modeling of Asphalt Concrete," *International Journal of Geomechanics, American Society of Civil Engineers*, **Vol. 6, No. 1, pp. 36-45.**
90. Park, D. W., Epps Martin, A., Masad, E. (2005). "Effects of Nonuniform Tire Contact Stresses on Pavement Response," *Journal of Transportation in Civil Engineering, American Society of Civil Engineers*, **Vol. 131, No. 11, pp. 873 – 879.**
91. Song, I., Little, D., and Masad, E., and Lytton, R. (2005). "Comprehensive Evaluation of Damage in Asphalt Mastics Using X-ray CT, Continuum Mechanics, and Micromechanics," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 74, pp. 885-920.**
92. Kim, S. H., Little, D., Masad, E. (2005). "Simple Methods to Estimate Inherent and Stress-Induced Anisotropic Level of Aggregate Base," *In Transportation Research Record 1913, Journal of the Transportation Research Board*, **pp. 24 – 31.**
93. Tashman, L., Masad, E., Zbib, H., Little, D., Kaloush, K. (2005). "Microstructural Viscoplastic Continuum Model for Asphalt Concrete," *Journal of Engineering Mechanics, American Society of Civil Engineers*, **Vol. 131, No. 1, pp. 48 – 57.**
94. Tashman, L., Masad, E., Little, D., Zbib, H. (2005). "A Microstructure-Based Viscoplastic Model for Asphalt Concrete," *International Journal of Plasticity*, **Vol. 21, No. 9, pp. 1659-1685.**
95. Masad, E., and Mahmoud, L. (2004). "Advances in Microstructure Characterization, Micromechanics, and Constitutive Modeling of Hot Mix Asphalt," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 16, No. 2, pp. 99.**
96. Masad, E., and Sivakumar, K. (2004). "Advances in the Characterization and Modeling of Civil Engineering Materials Using Imaging Techniques," *Journal of Computing in Civil Engineering, ASCE*, **Vol. 18, No. 1, pp. 1.**
97. Masad, E. (2004). "X-ray Computed Tomography of Aggregates and Asphalt Mixes," *Materials Evaluation Journal, American Society for Nondestructive Testing*. **Vol. 62, No. 7, pp. 775 – 783.**
98. Al-Omari, A., Masad, E. (2004). "Three Dimensional Simulation of Fluid Flow in X-ray CT Images of Porous Media," *International Journal for Numerical and Analytical Methods in Geomechanics*, **Vol. 28, pp. 1327 – 1360.**

99. Masad, E., Little, D., and Sukhwani, R. (2004). "Sensitivity of HMA Performance to Aggregate Shape Measured Using Conventional and Image Analysis Methods," *International Journal of Road Materials and Pavement Design*. **Vol. 5, No. 4, pp. 477 – 498.**
100. Masad, E., Little, D., and Lytton, R. (2004). "Modeling Nonlinear Anisotropic Elastic Properties of Unbound Granular Bases Using Microstructure Distribution Tensors," *International Journal of Geomechanics*, American Society of Civil Engineers. **Vol. 4, No. 4, pp. 254 – 263.**
101. Assaad, A., and Masad, E. (2004). "Analysis of Factors Influencing the Shear Deformation of Granular Materials," *Geotechnical Testing Journal, American Society of Testing and Materials (ASTM)*. **Vol. 27, No. 5, pp. 1- 7.**
102. Abbas, A., Papagiannakis, T., and Masad, E. (2004). "Linear and Non-Linear Viscoelastic Analysis of the Microstructure of Asphalt Concretes," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 16, No. 2, pp. 133 – 139.**
103. Chandan, C., Sivakumar, K., Masad, E., and Fletcher, T. (2004). "Geometry Analysis of Aggregate Particles Using Imaging Techniques," *Journal of Computing in Civil Engineering, ASCE*, **Vol. 18, No. 1, pp. 75 – 82.**
104. Peterson, B., Mahboub, K., Anderson, M., Masad, E., and Tashman, L. (2004). "Comparing Superpave Gyrotory Compactor Data to Field Cores," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 16, No. 1, pp. 78-83.**
105. Masad, E., Birgisson, B., Al-Omari, A., and Cooley, A. (2004). "Analytical Derivation and Numerical Simulation of Permeability and Fluid Flow Patterns in Hot Mix Asphalt," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 16, No. 4, pp. 487 - 496.**
106. Watson, D., Masad, E., Moore, K. A., Williams, K., and Cooley L. A. (2004). "Verification of VCA Testing to Determine Stone-On-Stone Contact of HMA Mixtures," *In Transportation Research Record 1891, Journal of the Transportation Research Board*, **pp. 182 - 190.**
107. Masad, E., and Button, J. (2004). "Experimental Measurements and Analysis of the Internal Structure Distribution in HMA," *In Transportation Research Record 1891, Journal of the Transportation Research Board*, **pp. 212 – 220.**
108. Tashman, L., Masad, E., Little, D., Lytton, R. (2004). "Damage Evolution in Triaxial Compression Tests of HMA at High Temperatures," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 73, pp. 53 - 81.**
109. Dessouky, S., Masad, E., and Bayomy, F. (2004). "Prediction of Hot Mix Asphalt Stability Using The Superpave Gyrotory Compactor," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 16, No. 6, pp. 578 – 587.**
110. Peterson, B., Mahboub, K., Anderson, M., Masad, E., and Tashman, L. (2003). "Superpave Laboratory Compaction versus Field Compaction," *Transportation Research Record 1832, Journal of the Transportation Research Board*, **pp. 201-208.**
111. Bahia, H., Masad, E., Stakton, A., Dessouky, S., and Bayomy, F. (2003). "Simplistic Mixture Design Using the SGC and the DSR," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 72, pp. 196-225.**

112. Saadeh, S., Masad, E., Stuart, K., Abbas, A., Papagainnakis, T., Al-Khateeb, G. (2003). "Comparative Analysis of Axial and Shear Viscoelastic Properties of Asphalt Mixes," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 72**, pp. 122-153.
113. Fletcher, T., Chandan, C., Masad, E., and Sivakumar, K. (2003). "Aggregate Imaging System (AIMS) for Characterizing the Shape of Fine and Coarse Aggregates," *Transportation Research Record 1832, Journal of the Transportation Research Board*, pp. 67 – 77.
114. Tashman, L., Masad, E., Crowe, C., Muhunthan, B. (2003). "Simulation of Fluid Flow in Granular Microstructure Using a Non-Staggered Grid Scheme," *International Journal of Computers and Fluids*, **Vol. 123**, pp. 1299-1323.
115. Dessouky, S., Masad, E., Bayomy, F. (2003). "Evaluation Of Asphalt Mix Stability Using Compaction Properties and Aggregate Structure Analysis," *International Journal of Pavement Engineering*, **Vol. 4, No. 2**, pp. 87 – 103.
116. Masad, E., Papagiannakis, T., Kherghehoush, R., Ali, N. (2002). "Rheological and Nuclear Magnetic Resonance Testing of Furfural-Modified Asphalt," *Journal of Applied Asphalt Binder Technology*, **Vol. 2, No. 1**, pp. 4-20.
117. Papagiannakis, T, Abbas, A., and Masad, E. (2002). "Micromechanical Analysis of the Viscoelastic Properties of Asphalt Concretes," *In Transportation Research Record, Journal of the Transportation Research Board 1789*, pp. 113-120.
118. Saadeh, S., Tashman, L., Masad, E., and Mogawer, W. (2002). "Spatial and Directional Distributions of Aggregates in Asphalt Mixes," *Journal of Testing and Evaluation, American Society for Testing and Materials, ASTM*, **Vol. 30, No. 6**, pp. 483-491.
119. Fletcher, T., Chandan, C., Masad, E., Sivakumar, K. (2002). "Measurement of Aggregate Texture and Its Influence on HMA Permanent Deformation," *Journal of Testing and Evaluation, American Society for Testing and Materials, ASTM*, **Vol. 30, No. 6**, pp. 524-531.
120. Masad, E. Muhunthan, B., and Crowe, C. (2002). "Numerical Modeling of Fluid Flow in Microscopic Images of Granular Materials," *International Journal for Numerical and Analytical Methods in Geomechanics*, **Vol. 26, No. 1**, pp. 53-74.
121. Masad, E., Jandhyala, V. K., Dasgupta, J., Somadevan, N., Shashidhar, N. (2002). "Characterization of Air Void Distribution in Asphalt Mixes using X-Ray CT," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 14, No. 2**, pp. 122-129.
122. Al-Omari, A., Tashman, L., Masad, E., Cooley, A., and Harman, T. (2002). "Proposed Methodology for Predicting HMA Permeability," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 71**, pp. 30 – 58.
123. Masad, E., and Bahia, H. (2002). "Effects of Loading Configuration and Material Properties on Non-Linear Response of Asphalt Mixtures," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 71**, pp. 535-558.

124. Abbas, A., Choi, B. C., Masad, E., and Papagiannakis, T. (2002). "The Influence of Laboratory Aging Method on the Rheological Properties of Asphalt Binders," *Journal of Testing and Evaluation, American Society for Testing and Materials, ASTM*, **Vol. 30, No. 2, pp. 171-176.**
125. Masad, E. and Niranjanan, S. (2002). "Microstructural Finite Element Analysis of the Influence of Localized Strain Distribution on Asphalt Mix Properties," *Journal of Engineering Mechanics, ASCE*, **Vol. 129, No. 10, pp. 1105-1114.**
126. Tashman, L., Masad, E., D'Angelo, J., Bukowski, J., and Harman, T. (2002). "X-ray Tomography to Characterize Air Void Distribution in Superpave Gyrotory Compacted Specimens," *International Journal of Pavement Engineering*, **Vol. 3, No. 1, pp. 19 – 28.**
127. Masad, E., Tashman, L., Niranjanan, S., and Little, D. (2002). "Micromechanics-Based Analysis of Stiffness Anisotropy in Asphalt Mixtures," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 14, No. 5, pp. 374 - 383.**
128. Romero, P. and Masad, E. (2001). "Relationship between the Representative Volume Element and Mechanical Properties of Asphalt Concrete," *Journal of Materials in Civil Engineering, ASCE*, **Vol. 13, No. 1, pp. 77 – 84.**
129. Tashman, L., Masad, E., Peterson, B., and Saleh, H. (2001). "Internal Structure Analysis of Asphalt Mixes to Improve the Simulation of Superpave Gyrotory Compaction to Field Conditions," *Journal of the Association of Asphalt Paving Technologists*, **Vol. 70, pp. 605-645.**
130. Masad, E., Olcott, D., White, T., and Tashman, L. (2001). "Correlation of Imaging Shape Indices of Fine Aggregate with Asphalt Mixture Performance," *In Transportation Research Record, Journal of the Transportation Research Board 1757*, **pp. 148 – 156.**
131. Masad, E., Niranjanan, S., Bahia, H., and Kose, S. (2001). "Modeling and Experimental Measurements of Localized Strain Distribution in Asphalt Mixes," *Journal of Transportation Engineering, ASCE*, **Vol. 127, No. 6, pp. 477 – 485.**
132. Masad, E., Button, J. and Papagiannakis, T. (2000). "Fine Aggregate Angularity: Automated Image Analysis Approach," *In Transportation Research Record, Journal of the Transportation Research Board 1721*, **pp. 66 – 72.**
133. Masad, E., and Button, J. (2000). "Unified Imaging Approach for Measuring Aggregate Angularity and Texture," *Computer-Aided Civil and Infrastructure Engineering*, **Vol. 15, No. 4, pp. 273 - 280.**
134. Kose, S., Guler, M., Bahia, H., and Masad, E. (2000). "Distribution of Strains within Hot-Mix Asphalt Binders," *In Transportation Research Record, Journal of the Transportation Research Board 1728*, **pp. 21-27.**
135. Masad, E. and Muhunthan, B. (2000). "Three-Dimensional Characterization and Simulation of Anisotropic Soil Fabric," *Journal of Geotechnical and Geoenvironmental Engineering, ASCE*, **Vol. 126, No. 3, pp. 199 - 207.**
136. Muhunthan, B., Masad, E., and Assaad, A. (2000). "Measurement of Uniformity and Anisotropy in Granular Materials," *Geotechnical Testing Journal, ASTM*, **Vol. 23, No. 4, pp. 423 – 431.**

137. Masad, E., Muhunthan, B., and Martys, N. (2000). "Simulation of Fluid Flow and Permeability in Cohesionless Soils," *Water Resources Research*, **Vol. 36, No. 4**, pp. 851 - 864.
138. Masad, E., Muhunthan, B., Shashidhar, N., and Harman T. (1999). "Internal Structure Characterization of Asphalt Concrete Using Image Analysis," *Journal of Computing in Civil Engineering (Special Issue on Image Processing)*, ASCE, **Vol. 13, No. 2**, pp. 88 - 95.
139. Masad, E., Muhunthan, B., Shashidhar, N., and Harman, T. (1999). "Quantifying Laboratory Compaction Effects on the Internal Structure of Asphalt Concrete," *In Transportation Research Record, Journal of the Transportation Research Board 1681*, pp. 179 - 184.
140. Masad, E., Muhunthan, B. and Chameau, J. L. (1998). "Stress- Strain Model for Clays with Anisotropic Void Ratio Distribution," *International Journal for Numerical and Analytical Methods in Geomechanics*, **Vol. 22**, pp. 393 - 416.
141. Adamcewicz, A. S., Muhunthan, B. and Masad, E. (1997). "Soil Fabric Changes During Consolidation," *Geotechnical Testing Journal*, ASTM, **Vol. 20, No. 3**, pp. 347 – 356.
142. Masad, E., Taha, R., and Muhunthan, B. (1996). "Finite-Element Analysis of Temperature Effects on Plain-Jointed Concrete Pavements," *Journal of Transportation Engineering*, ASCE, **Vol. 122, No. 5**, pp. 388-398.
143. Masad, E., Taha, R., Ho, C. and Papagiannakis, T. (1996). "Engineering Properties of Tire/Soil Mixtures as a Lightweight Fill Material," *Geotechnical Testing Journal*, ASTM, **Vol. 19. No. 3**, pp. 297 -304.
144. Muhunthan, B., Chameau, J. L. and Masad, E. (1996). "Fabric Effects on the Yield Behavior of Soils," *Soils and Foundations*, **Vol. 36, No. 3**, pp. 85 - 97.

Conference Refereed Papers:

1. Masad, E. and Kassem*, E. (2008). "Improving the Field Compaction of Asphalt Pavements Using X-ray CT and Imaging Techniques," *Efficient Pavements and Transportation Systems: Characterization, Mechanism, Simulation, and Modeling, Proceedings of the fourth International Gulf Conference on Roads*,, Editors, I. Al-Qadi, T. Sayed, N. Alnuimi and E. Masad, Taylor and Francis Publishing Company, pp. 611-620.
2. Masad, E. and Mahmoud*, E. (2008). "Discrete Element Analysis of Aggregate Resistance to Fracture in Asphalt Mixtures," *Efficient Pavements and Transportation Systems: Characterization, Mechanism, Simulation, and Modeling, Proceedings of the fourth International Gulf Conference on Roads*,, Editors, I. Al-Qadi, T. Sayed, N. Alnuimi and E. Masad, Taylor and Francis Publishing Company, pp. 673-682.
3. Masad, E. and Rezaie*, A. (2008). "Relationship of Asphalt Pavement Skid Resistance to Aggregate Properties," *Efficient Pavements and Transportation Systems: Characterization, Mechanism, Simulation, and Modeling, Proceedings of the fourth International Gulf Conference on Roads*,, Editors, I. Al-Qadi, T. Sayed, N. Alnuimi and E. Masad, Taylor and Francis Publishing Company, pp. 541-548.

4. Little, D., Masad, E., and Ashtiani, R. (2007). "Characterization of Anisotropic Base Materials with High Fines Content," *Proceedings of the International Conference on Advanced Characterization of Pavement and Soil Engineering Materials*, Athens, Greece.
5. Masad, E., Huang, C., Airey, G., and Muliana, A. (2007). "Nonlinear Viscoelastic Modeling of Asphalt Binders," *Proceedings of the International Conference on Advanced Characterization of Pavement and Soil Engineering Materials*, Athens, Greece.
6. Howson, J., Bhasin, A., Masad, E., Little, D., Lytton, R., and Claros, G. (2007). "Influence of Material Factors on Surface Free Energy and Performance Related Parameters," *Proceedings of the International Conference on Advanced Characterization of Pavement and Soil Engineering Materials*, Athens, Greece.
7. Arambula, E., Masad, E., Epps Martin, A., Ketcham, R., and Abbas, A. (2007). "Assessment of Moisture Transport in Hot Mix Asphalt Using X-ray Computed Tomography," *Proceedings of the International Conference on Advanced Characterization of Pavement and Soil Engineering Materials*, Athens, Greece.
8. Airey, G., Masad, E., Bhasin, A., Caro, S., and Little, D. (2007). "Asphalt Mixture Moisture Damage Assessment Combined with Surface Energy Characterization," *Proceedings of the International Conference on Advanced Characterization of Pavement and Soil Engineering Materials*, Athens, Greece.
9. Huang, C., Masad, E., Muliana, A., Bahia, H. (2007). "Nonlinear Viscoelastic Analysis of Asphalt Mixtures," *Analysis of Asphalt Pavement Materials and Systems: Engineering Methods*, Geo-Institute, American Society of Civil Engineers. Editors: Wang, L. and Masad, E., **ASCE Geotechnical Special Publication, GSP N0. 176, pp. 64-72.**
10. Abbas, A., Papagiannakis, T., and Masad, E. (2006). "Micromechanical Simulation of Asphaltic Materials Using the Discrete Element Method," *Asphalt Concrete: Simulation, Modeling, and Experimental Characterization*, Geo-Institute, American Society of Civil Engineers. Editors: Masad, E., Panoskaltsis, V., and Wang, L., **ASCE Geotechnical Special Publication, GSP No. 146, pp. 1-11.**
11. Dessouky, S., and Masad, E. (2006). "The Development of a Microstructural-Based Continuum Model for Hot Mix Asphalt," *Asphalt Concrete: Simulation, Modeling, and Experimental Characterization*, Geo-Institute, American Society of Civil Engineers. Editors: Masad, E., Panoskaltsis, V., and Wang, L., **ASCE Geotechnical Special Publication, GSP No. 146, pp. 44-52.**
12. Al-Omari, A., and Masad, E. (2004). "Three Dimensional Simulation of Fluid Flow in Granular Material Microstructure," *Advances in Geotechnical Engineering with Emphasis on Dams, Highway Materials and Soil Improvement*, Editors, Al-Shibli, K., Malkawi, A. H., and Alsaleh, M., July 12-15, Irbid, Jordan, **ASCE Geotechnical Practice Publication No. 1, pp. 177 – 190.**
13. Park, D. W., Epps Martin, A., and Masad, E. (2004). "Simulation of Permanent Deformation Using An Elastic Viscoplastic Constitutive Relation," *Proceedings of the International Conference on Accelerated Pavement Testing*, Minneapolis, Minnesota, September 26 – 29, 2004.
14. Masad, E., Zollinger, D. (2004). "Integrated Approach for Teaching Laboratory Courses and Basic Properties of Construction Materials," *2004 ASEE Annual Conference-Gulf Southwest Section* March 11-12, 2004, Texas Tech University, Lubbock, TX.

15. Tashman, E., Masad, E., Zbib, H., and Little, D., Kaloush, K. (2004). "Continuum Damage Model for Permanent Deformation of Asphalt Mixes," *Proceedings of the 15th Engineering Mechanics Conference, ASCE, Columbia University, NY. Recent Advances in Materials Characterization and Modeling of Pavement Systems, Editors, Tutumluer, E., Masad, E., and Najjar, Y., Reston, VA., ASCE Geotechnical Special Publication No. 123, pp. 111-125.*
16. Abbas, A., Papagiannakis, T, Masad, E. (2004). "Microstructural Analysis of the Constitutive Behavior of Asphalt Concretes," *Proceedings of the 15th Engineering Mechanics Conference, ASCE, Columbia University, NY. Recent Advances in Materials Characterization and Modeling of Pavement Systems, Editors, Tutumluer, E., Masad, E., and Najjar, Y., Reston, VA., ASCE Geotechnical Special Publication No. 123, pp. 102 – 110.*
17. Dessouky, S., Masad, E., Zbib, H., Little., D. (2003). "Finite Element Gradient Elasticity Model for the Analysis of Bituminous Material Microstructure," *Proceedings of the Second MIT Conference on Computational Fluid and Solid Mechanics, June 17-20, 2003, Cambridge, Massachusetts.*
18. Dessouky, S., Masad, E., and Bayomy, F., (2002). "Analysis and Measurement of Asphalt Mix Stability Using the Superpave Gyratory Compactor," *The 6th International Conference on the Bearing Capacity of Roads, Railways, and Airfields (BCRA'02), Lisbon, Portugal.*
19. Dessouky, S., Masad, E., and Bayomy, F., (2002). "Image Analysis Techniques: New Methods for Characterizing Asphalt Mixes and Aggregates," *First Gulf Conference on Roads, Kuwait.*
20. Button, J. W., Chowdhury, A., Park, D-W, Little, D., and Masad, E. (2002). "Effects of Fine Aggregate Properties on Rutting Resistance," *Ninth International Conference on Asphalt Pavements, Copenhagen, Denmark, Vol. 1, No. 7-2.*
21. Chowdhury, A., Button, J. W., Wilson, D., Masad, E., and Prowell, B. D. (2001). "Image Analysis Techniques to Determine Fine Aggregate Angularity," *Aggregate Contribution to Hot Mix Asphalt (HMA) Performance, Special Testing Publication, ASTM, T. D. White, S. R. Johnson, and J. J. Yzenas, Eds., American Society for Testing and Materials, West Conshohocken, PA., STP 1412, pp. 128-143.*
22. Masad, E., Button, J. and Papagiannakis, T. (2000). "Summary of the Paper: Fine Aggregate Angularity, Automated Image Analysis Approach," *The Catalog of 2000 Practical Papers Published by the Transportation Research Board, Section on Mineral Aggregates, Paper Number 00-0691.*
23. Masad, E., Muhunthan, B., Shashidhar, N., and Harman T. (1998). "Aggregate Orientation and Segregation in Asphalt Concrete," *ASCE Geotechnical Special Publication, GSP No. 85, pp. 69 - 80.*
24. Masad, E. A. and Muhunthan, B., (1998). "Simulation of Three-Dimensional Anisotropic Soil Microstructure," *Proc., Imaging Technologies: Techniques and Civil Engineering Applications Conference, McNeil, S. and Frost, D. "Editors", Davos, Switzerland, pp. 265 - 285.*
25. Muhunthan, B. and Masad, E., (1998). "Determination of Void Fabric Tensor of Soils without Radial Sampling Bias," *Proc., Imaging Technologies: Techniques and Civil Engineering Applications Conference, McNeil, S. and Frost, D. "Editors", Davos, Switzerland, pp. 40 - 55.*

Invited Presentations and Lectures:

1. Masad, E. (2012). "Integrated Approach for the Construction of Long-Lasting Roads in the State of Qatar," *Road Planning, Design and Construction Middle East Conference*, March 12, Doha-Qatar.
2. Masad, E. (2012). "Research and Graduate Studies at Texas A&M at Qatar," University of Jordan, December 27, Amman-Jordan.
3. Masad, E., Abu Al-Rub, and Little, D. (2011). "Pavement Analysis Using Nonlinear Damage Approach," Transportation Research Board Webinar, *Advanced Models to Characterize and Design Asphalt Pavements: Implementation and Application Examples*, October 12, Washington DC.
4. Masad, E. (2011). "Development and Implementation of State-of-the-Practice Methods in Asphalt Pavement Design and Construction," *Road Planning, Design and Construction Middle East Conference*, March 7, Doha-Qatar.
5. Masad, E. (2010). "Mechanistic Modeling of Asphalt Pavements," Faculty of Civil Engineering, South China University of Technology, Guangzhou, China.
6. Masad, E. (2010). "Models for Plastic Deformation Based on Non-Linear Response for FEM Implementation," *International Workshop on Asphalt Binders and Mastics*, September 16, Madison, Wisconsin.
7. Masad, E. (2010). "Opportunities and Challenges in Mechanistic Modeling of Asphalt Pavements," Illinois Center for Transportation, University of Illinois at Urbana-Champaign, September 20, 2010.
8. Masad, E. (2010). "Recent Advances in Characterization of Asphalt Pavement Materials in Qatar," Invited Lecture by the Qatar Society of Engineers, January 25th, Doha, Qatar.
9. Masad, E. (2010). "State-of-the-Art in Laboratory Characterization of Asphalt Mixtures and its Relationships to Project Quality," Invited Lecture by Qatar Public Works Authority, February 8, 2010, Doha, Qatar.
10. Masad, E. (2008). "Modeling of Hot Mix Asphalt," *Workshop on Validation of Advanced Flexible Pavement Modeling with Accelerated Pavement Testing Data*, 87th Annual Meeting of the Transportation Research Board, January 13, Washington DC.
11. Masad, E. (2008). "Image Analysis Systems for Measuring Shape Properties," *Workshop on Recent Developments in Characterization of Aggregate Shape, Angularity, and texture*, 87th Annual Meeting of the Transportation Research Board, January 13, Washington DC.
12. Masad, E. (2007). "Characterization of Binders and Aggregates for Durable Pavements," Road Maintenance: a High Tech Industry Workshop, December 6 and 7, Delft University of Technology, Delft, Netherlands.
13. Masad, E. (2007). "Fatigue Research in Asphalt Pavement Consortium," *Fundamental Properties and Advanced Models Expert Task Group of the Federal Highway Administration*, July 23, Denver, Colorado.
14. Masad, E. (2007). "Development and Implementation of a Microstructure-Based Model for Asphalt Mixes," *An International Symposium on Asphalt Pavement Design and Performance*, University of Nottingham, June 18, Nottingham, Nottingham, United Kingdom.

15. Masad, E. (2007). "Microstructure-Based Modeling of Asphalt Composites from Development to Implementation," *The 18th Engineering Mechanics Division Conference of the American Society of Civil Engineers*, June 3-6, Blacksburg, VA. (Keynote Presentation).
16. Masad, E., Huang, C. W., D'Angelo, J., Bahia, H., and Airey, G. (2007). "Nonlinear Viscoelastic Analysis of Asphalt Binders and Mixes," *The 6th International Conference on Binder Rheology and Pavement Performance*, April 2-3, Tampa, FL.
17. Masad, E., Bhasin, A., Little, D., and Lytton, R. (2007). "A System Approach for the Analysis of Moisture Damage," *The 6th International Conference on Binder Rheology and Pavement Performance*, April 2-3, Tampa, FL.
18. Masad, E. (2007). "On the Limitations of the Use of Linear Viscoelasticity in Modeling the Behavior of Asphalt Mixes," *Modeling Expert Task Group of the Federal Highway Administration*, February 7-8 Phoenix, AZ.
19. Masad, E. (2006). "A Proven System for the Characterization of HMA Resistance to Moisture Damage and Fatigue," *Carpenter Symposium on Modeling of Pavement Materials and Damage Mechanics*, December 17-19, Hammamet, Tunisia.
20. Masad, E. (2006). "Applications of Simulation, Imaging and Mechanics to Asphalt Pavements," *Department of Civil Engineering, Michigan Technological University*, November 1st, Houghton, MI.
21. Masad, E. (2006). "A Unified Method for Fatigue Characterization of Asphalt Mixtures," *Modeling Expert Task Group of the Federal Highway Administration, University of Illinois at Urbana-Champaign*, October 12-13, Urbana, AZ.
22. Masad, E. (2006). "Relationship of Moisture Damage to the Microstructure Properties of Asphalt Mixes," *National Science Foundation Workshop on Microstructure and Micromechanics of Stone-Based Infrastructure Materials, Virginia Tech*, October 5-6, Blacksburg, VA.
23. Masad, E. (2006). "Microstructure Characterization of Geomaterials," *Three Invited Lectures in an International Workshop on Geomechanics, Charles University*, September 25-27, Prague, Czech Republic.
24. Masad, E., Lytton, R., and Little, D. (2006). "A Proven System for the Characterization of HMA Resistance to Moisture Damage," *Oklahoma Department of Transportation*, March 10, Oklahoma City, OK.
25. Masad, E., Lytton, R., and Little, D. (2006). "Mechanics Tools for Characterizing Moisture Damage in Asphalt Pavements," *University of Oklahoma*, March 10, Norman, OK.
26. Masad, E. (2005). "Factors Influencing Moisture Damage of Asphalt Pavements," *International Workshop on Moisture Induced Damage of Asphalt Mixes, Delft Technological University*, November 22-25, Delft, The Netherlands.
27. Masad, E. (2005). "Elasto-Visco-Plastic Modeling and Microstructure Analysis of Asphalt Mixes," *University of Florida*, October 27th, Gainesville, FL.

28. Masad, E. (2005). "Predictions of HMA Permeability Tensor Coefficients Through Three Dimensional Numerical Simulations of Fluid Flow in the Microstructure," *Symposium on Advances in Pavement Mechanics, Eighth U.S. National Congress on Computational Mechanics (USNCCM8)*, July 25-27, Austin, TX. (Keynote Presentation).
29. Masad, E., and Tutumluer, E. (2005). "Test Methods for Measuring Aggregate Shape, Angularity and Texture," *56th Highway Geology Symposium*, Wilmington, North Carolina, May 4-6, 2005.
30. Masad, E. (2005). "Analysis of HMA Permeability through Microstructure Characterization and Simulation of Fluid Flow in X-ray CT Images," *Department of Civil Engineering, University of Tennessee*, April 1st, Knoxville, TN.
31. Masad, E. (2005). "Multiscale Modeling of Bound Granular Materials: Application to Hot Mix Asphalt," *School of Mechanical and Material Engineering, Washington State University*, April 21, Pullman, WA.
32. Masad, E. (2005). "Microstructure Characterization of Hot Mix Asphalt," Session on Emerging Models for Asphalt Mixtures and Pavements: What Are They and How Do They Work, *The 84th Annual Meeting of the Transportation Research Board*, Washington, DC.
33. Masad, E. (2004). "Moisture Damage of Hot Mix Asphalt," *Department of Civil and Environmental Engineering, Jordan University of Science and Technology*, July 13, Irbid, Jordan.
34. Masad, E. (2003). "Microstructure-based Viscoplastic Continuum Model for Asphalt Concrete," *Department of Civil Engineering, University of Minnesota*, October 31, Minneapolis, MN.
35. Masad, E. (2003). "Imaging of the Microstructure of Asphalt Mixes and Aggregates," *The NSF-FHWA Workshop on Imaging and Simulation of Concrete Microstructure (Nano to Mesoscale)*, July 29-31, Northwestern University, Evanston, IL.
36. Masad, E. (2003). "The Development of the Aggregate Imaging System (AIMS)," *The 36th Annual Mid-Atlantic Region Quality Assurance Workshop*, February 11-13, Charleston, West Virginia.
37. Masad, E. (2002). "Anisotropic Viscoplastic Damage Model for Asphalt Mixes," *Department of Civil and Environmental Engineering, Louisiana State University*, November 20, Baton Rouge, LA.
38. Masad, E. (2002). "Microstructure Based Characterization and Modeling of Asphalt Mixes," *Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign*, May 8th, Urbana, IL.
39. Masad, E. (2002). "Microstructure Based Characterization and Modeling of Asphalt Mixes," *Department of Civil Engineering and Texas Transportation Institute, Texas A&M University*, May 6th, College Station, TX.
40. Masad, E. (2000). "Applications of Imaging Technologies to Asphalt Mixtures," *6th Annual Oregon Asphalt Conference*, March 10, Eugene, Oregon.
41. Masad, E. (2000). "Analysis of Asphalt Mixes and Aggregates Using Imaging Technology," *Department of Civil Engineering and Texas Transportation Institute, Texas A&M University*, October 24th, College Station, TX.

42. Masad, E. (1999). "Applications of Imaging Technologies to Asphalt Mixtures," *Idaho Asphalt Conference*, October 21, Moscow, Idaho.
43. Masad, E. (1998). "Numerical Modeling of Geo-materials," *Department of Civil Engineering, University of Wisconsin*, Madison, WI.
44. Masad, E., and Muhunthan, B. (1997). "On the Modeling of Materials Microstructure," *Department of Civil Engineering, University of Massachusetts*, Amherst, MA.

Conference Papers, Articles and Professional Presentations:

1. Kassem, E, Masad, E. (2011). "Skid Resistance of Asphalt Pavements." *Southeastern Asphalt User Producer Group Meeting*, Savannah, Georgia, November 14-17.
2. Kassem, E. and Masad, E. (2011). "Prediction of Asphalt Pavements Skid Resistance Using Aggregate Texture and Mixture Design Data." FHWA Asphalt Models, Binder & Mix ETG Meetings, Phoenix, Arizona, March 17-18.
3. Sousa, P., Kassem, E., Masad, E., and Little, D. "New Design Method of Fine Aggregates Mixtures and Automated Method for Analysis of Dynamic Mechanical Characterization Data." The 90th Annual Meeting, Transportation Research Board, Washington, D.C., January 2011
4. Abu Al-Rub, R., Darabi, M., Masad, E. (2010). "A Straightforward Numerical Technique for Finite Element Implementation of Nonlocal Gradient-Dependent Continuum Damage Mechanics Theories," *In the 16th US National Congress of Theoretical and Applied Mechanics*, USNCTAM2010-991.
5. Darabi, M.K., Abu Al-Rub, R.K., Masad, E.A., "A Direct Finite Element Implementation of Gradient-Dependent Continuum Damage Mechanics Theories," *In. Engineering Mechanics Institute 2010, EMI 2010*, Los Angeles, California, August 8-11, 2010.
6. Darabi, M.K., Abu Al-Rub, R.K., Masad, E.A., Little, D.N., "A Unified Thermodynamic Constitutive Model for Predicting the Viscoelastic, Viscoplastic, and Viscodamage Behavior of Asphalt Mixes," *In the Engineering Mechanics Institute 2010, EMI 2010*, Los Angeles, California, August 8-11, 2010.
7. Graham, Abu Al-Rub, R.K., Masad, E.A., Little, D.N., "Damaged Viscoelastic-Viscoplastic Model for Asphalt Concrete Mixes," *In the 2009 Joint ASCE-ASME-SES Conference on Mechanics of Materials*, Blacksburg, Virginia, June 24-27, 2009.
8. Lytton, R. and Masad, E. (2009). "The Future of Geotechnical Pavement Engineering," *Geo-Strata*, American Society of Civil Engineering, **Vol. 13, No. 3, pp. 24-26.**
9. Masad, E. (2008). "Modeling of Hot Mix Asphalt," *Workshop on Validation of Advanced Flexible Pavement Modeling with Accelerated Pavement Testing Data*, 87th Annual Meeting of the Transportation Research Board, January 13, Washington DC.
10. Masad, E. (2008). "Image Analysis Systems for Measuring Shape Properties," *Workshop on Recent Developments in Characterization of Aggregate Shape, Angularity, and Texture*, 87th Annual Meeting of the Transportation Research Board, January 13, Washington DC.

11. Masad, E. (2008). "Modeling Approaches in the Asphalt Research Consortium," *Fundamental Properties and Advanced Models Expert Task Group of the Federal Highway Administration*, June 19, Chicago, Illinois.
12. Masad, E. (2008). "Damage and Anisotropic Viscoelastic-Viscoplastic Model for Hot Mix Asphalt," *The 3rd IMS International Conference on Applications of Traditional and High Performance Materials in Harsh Environment*, American University of Sharjah, January 23-24, Sharjah, United Arab Emirates.
13. Masad, E. (2008). "Analysis of Moisture Damage in Hot Mix Asphalt," *The 3rd IMS International Conference on Applications of Traditional and High Performance Materials in Harsh Environment*, American University of Sharjah, January 23-24, Sharjah, United Arab Emirates.
14. Dessouky, S. and Masad, E. (2007). "Numerical Implementation of an Elasto-Viscoplastic Microstructure-Based Continuum Model for Asphalt Concrete," *The 44th Annual Technical Meeting of the Society of Engineering Science*, October 21-24, College Station, TX.
15. Castelo Branco, V., Masad, E., Little, D., and Bhasin, A. (2007). "An Improved Method for the Analysis of Asphalt Mastic Using DMA," *Proceedings of the 15th Symposium of the International Center for Aggregate Research*, Austin, TX. **(CD Publications)**.
16. Ashtiani, R., Little, D., and Masad, E. (2007). "Optimizing the Performance of Base Layers with High Fines Content," *Proceedings of the 15th Symposium of the International Center for Aggregate Research*, Austin, TX. **(CD Publications)**.
17. Saadeh, S., and Masad, E. (2006). "A Viscoelastic-Viscoplastic Damage Model for Asphalt Mixes," *15th U.S. National Congress on Theoretical and Applied Mechanics*, University of Colorado at Boulder, June 25 -30, Boulder, CO.
18. Huang, C. W., Masad, E., Muliana, A. (2006). "Nonlinear Viscoelastic Analysis of Asphalt Mixes at Different Temperatures and Strain Levels," *15th U.S. National Congress on Theoretical and Applied Mechanics*, University of Colorado at Boulder, June 25 -30, Boulder, CO.
19. Masad, E., and Little, D. (2006). "Aggregates and Stone Matrix Asphalt Mixtures: A Winning Combination," *Stone, Sand & Gravel REVIEW*, National Stone, Sand, and Gravel Association, January-February 2006 Issue.
20. Mahmoud, E., Masad, E., and Little, D. (2006). "Evaluation of Aggregate Resistance to Degradation Under Mechanical Forces," *Proceedings of the 14th Symposium of the International Center for Aggregate Research*, Austin, TX. **(CD Publications)**.
21. Tashman, L., and Masad, E., and Little, D. (2005). "Characterization of Air Void Distribution in Asphalt Concrete Using X-ray Tomography," *The First Middle East International Conference on Advances in Civil, Mechanical, and Materials Engineering*, May 10-13, Amman, Jordan.
22. Al-Rousan, T., and Masad, E. (2005). "Characterization of Aggregate Shape Properties Using a Computer Automated System," *The First Middle East International Conference on Advances in Civil, Mechanical, and Materials Engineering*, May 10-13, Amman, Jordan.
23. Al-Omari, A., and Masad, E., (2005). "Analysis of HMA Permeability through Microstructure Characterization and Simulation of Fluid Flow in X-ray CT Images," *The First Middle East*

- International Conference on Advances in Civil, Mechanical, and Materials Engineering*, May 10-13, Amman, Jordan.
24. Dessouky, S., Masad, E., Saadeh, S., and Little, D. (2005). "Development and Finite Element Implementation of Anisotropic Viscoplastic Model for Hot Mix Asphalt," *The 2005 Joint ASCE/ASME/SES Conference on Mechanics and Materials*, June 1-3, Baton Rouge, Louisiana.
 25. Saadeh, S., Masad, E., Dessouky, S., and Little, D. (2005). "Experimental Verification of Anisotropic Elasto-Visco-Plastic Model for Hot Mix Asphalt Under Different Loading Conditions," *The 2005 Joint ASCE/ASME/SES Conference on Mechanics and Materials*, June 1-3, Baton Rouge, Louisiana.
 26. Abbas, A., Masad, E., and Papagiannakis, E. (2005). "Simulation of the Micromechanical Behavior of Asphalt Mixtures Using the Discrete Element Method," *The 2005 Joint ASCE/ASME/SES Conference on Mechanics and Materials*, June 1-3, Baton Rouge, Louisiana.
 27. Masad, E., Mahmoud, E., Little, D., Herrera, C., and Morgan, E. (2005). "Evaluation of Aggregate Resistance to Polishing and Abrasion Using Imaging Techniques," *Proceedings of the 13th Symposium of the International Center for Aggregate Research*, Austin, TX. **(CD Publications)**.
 28. Masad, E., Bathina, M., Little, D., and Spiegelman, C. (2005). "Statistical Methods for the Analysis of Aggregate Physical Characteristics," *Proceedings of the 13th Symposium of the International Center for Aggregate Research*, Austin, TX. **(CD Publications)**.
 29. Masad, E., and Al-Omari, A. (2004). "Predictions of HMA Permeability Using 3-D Microstructure Simulation of Fluid Flow," *International Conference on Computational and Experimental Engineering and Sciences*, July 26 – 29, 2004, Madeira, Portugal.
 30. Al-Omari, A., and Masad, E. (2004). "Three Dimensional Simulation of Fluid Flow in Granular Material Microstructure," *Advances in Geotechnical Engineering with Emphasis on Dams, Highway Materials and Soil Improvement*, July 12- 15, Irbid, Jordan.
 31. Dessouky, S, Saadeh, S., Masad, E., and Little, D. (2004). "Microstructural Viscoplastic Continuum Model for Asphalt Mixes," *International Conference on Computational and Experimental Engineering and Sciences*, July 26 – 29, 2004, Madeira, Portugal.
 32. Tashman, L., Masad, E., Saadeh, S., and Little, D. (2004). "Nonassociated Viscoplastic Model for Asphalt Mixes based on Microstructure Analysis," *Proceedings of the 17th Engineering Mechanics Conference, ASCE*, University of Delaware June 13-16, Newark, DE.
 33. Abbas, A., Masad, E., Papagiannakis, T. (2004). "Viscoelastic Analysis of Asphalt Concretes using the Discrete Element Method," *Proceedings of the 17th Engineering Mechanics Conference, ASCE*, University of Delaware June 13-16, Newark, DE.
 34. Masad, E., and Al-Omari, A. (2004). "Three Dimensional Simulation of Fluid Flow in Granular Material Microstructure," *Proceedings of the 17th Engineering Mechanics Conference, ASCE*, University of Delaware June 13-16, Newark, DE.
 35. Masad, E., (2004). "Microstructure Analysis of HMA Using Imaging Techniques: Simulation, Imaging and Mechanics of Asphalt Pavements (SIMAP)," *Jordan International Conference on Sustainable Development of Transportation Systems*, April 13-15, Amman, Jordan.

36. Dessouky, S., Masad, E., Zbib, H., Little, D. (2003). "Finite Element Analysis of Thin Film Deformation in Asphalt Mixes Using Gradient Elasticity," *Proceedings of the 16th Engineering Mechanics Conference, ASCE*, University of Washington July 16-18, Seattle, WA.
37. Masad, E., Birgisson, B., Al-Omari, A., and Cooley, A. (2003). "Analysis of Permeability and Fluid Flow in Asphalt Mixes," *The 82th Annual Meeting of the Transportation Research Board*, Washington, DC.
38. Fletcher, T., Chandan, C., Masad, E., and Sivakumar, K. (2003). "Aggregate Imaging System (AIMS) for Characterizing the Shape of Fine and Coarse Aggregates," *The 82th Annual Meeting of the Transportation Research Board*, Washington, DC.
39. Masad, E. (2002). "Aggregate Imaging System (AIMS)," *The Transportation Research Board, Superpave Mixture/Aggregate Expert Task Group*, August 28-29, Minneapolis, MN.
40. Fletcher, T., Chandan, C., Masad, E., Sivakumar, K. (2002). "Measurements of Aggregate Texture and Its Influence on HMA Permanent Deformation," *The 81th Annual Meeting of the Transportation Research Board*, Washington, DC.
41. Masad, E., Tashman, L., Zbib, H., and Little, D. (2002). "Anisotropic Viscoplastic Model for Asphalt Mixes with Microstructure Parameters," *Plasticity 2002*, January 3-9, ARUBA.
42. Masad, E., Tashman, L., and Little, D. (2002). "A Continuum Damage Framework To Validate A Unified Method Of Aggregate Classification Based On Image Analysis," *Proceedings of the 10th Symposium of the International Center for Aggregate Research*, Baltimore, MD. **(CD Publications)**.
43. Masad, E., and Fletcher, T. (2001). "AIMS: Aggregate Imaging System for Characterizing the Shape of Coarse and Fine Aggregates," *Proceedings of the 10th Symposium of the International Center for Aggregate Research*, Baltimore, MD. **(CD Publications)**.
44. Masad, E., Tashman, L., Saleh, H. (2001). "Evaluation of Air Void Structure in Asphalt Mixes Under Different Compaction Techniques," *The 10th Annual Research Symposium of the American Society for Nondestructive Testing*, Denver, CO.
45. Masad, E. (2001). "Review of Imaging Techniques for Characterizing the Shape of Aggregates Used In Asphalt Mixes," *Proceedings of the 9th Symposium of the International Center for Aggregate Research*, Austin, TX. **(CD Publications)**.
46. Abbas, A., Papagiannakis, T., Masad, E. (2001). "Relating the Microstructure of Asphalt Mixes to their Constitutive Behavior," *Proceeding of the 2001 ASCE-ASME-SES Joint Applied Mechanics and Materials Summer Conference*, University of California, San Diego, LaJolla, CA, June 27-29, 2001.
47. Masad, E., Tashman, L., and Little, D. (2001). "Quantifying Anisotropy in Asphalt Mixtures Using Micromechanics Analysis," *Proceeding of the 2001 ASCE-ASME-SES Joint Applied Mechanics and Materials Summer Conference*, University of California, San Diego, LaJolla, CA, June 27-29, 2001.

48. Masad, E., Olcott, D., White, T., and Tashman, L. (2001). "Correlation of Imaging Shape Indices of Fine Aggregate with Asphalt Mixture Performance," *The 80th Annual Meeting of the Transportation Research Board*, Washington, DC.
49. Masad, E., Jandhyala, V. K., Dasgupta, N., and Saleh, H. (2000). "The Use of X-ray Computed Tomography in Quantifying Air Voids in Asphalt Compacted Specimens," *The 9th Annual Research Symposium of the American Society for Nondestructive Testing*, Birmingham, AL.
50. Masad, E., Tashman, L., Peterson, B. Anderson, M., Harman, T., D'Angelo, J., and Bukowski, J. (2000), "Analysis of Asphalt Mixes and Aggregates Using Imaging Technology," *The TRB-FHWA Mixture Expert Task Group Meeting*, September 11 - 13, Indianapolis, IN.
51. Masad, E., Tashman, L., Peterson, B., Harman, T., D'Angelo, J., and Bukowski, J. (2000). "Advances in the Internal Structure Analysis of Asphalt Mixes," *Peterson Asphalt Research Conference, 37th Annual meeting*, Laramie, WY.
52. Masad, E., Tashman, L., Somadevan, N., James, L., and Olcott, D. (2000). "Applications of Imaging Technology to Asphalt Mixes," *6TH Annual Oregon Asphalt Conference*, March 10th, Salem, OR.
53. Masad, E. (2000). "New Tools for Quantifying the Effects of Compaction Procedures on Asphalt Mixtures," *The Meeting of the Four States New Pavement Technology Pooled Fund*, January 27th, Tumwater, WA.
54. Masad, E., Button, J. and Papagiannakis, T. (2000). "Fine Aggregate Angularity: Automated Image Analysis Approach," *The 79th Annual Meeting of the Transportation Research Board*, Washington, DC.
55. Kose, S., Guler, M., Bahia, H., and Masad, E. (2000). "Distribution of Strains within Asphalt Binders in HMA Using Imaging and Finite Element Techniques," *The 79th Annual Meeting of the Transportation Research Board*, Washington, DC.
56. Masad, E. (1999). "Applications of Imaging Technology to Asphalt Mixtures," *1999 Idaho Asphalt Conference*, Moscow, ID.
57. Masad, E. (1999). "A New Approach for the Analysis of Asphalt Mixes Using Imaging Technology," *The Annual Convention of The Asphalt Paving Association of Washington*, Seattle, WA.
58. Masad, E., Papagiannakis, T. (1999). "The Establishment of Washington Center for Asphalt Technology (WCAT)," *The Annual Convention of the Asphalt Paving Association of Washington*, Seattle, WA.
59. Masad, E. A., Muhunthan, B., Shashidhar, N., and Harman, T. (1999). "Effect of Compaction Procedure on the Aggregate Structure in Asphalt Concrete," *The 78th Transportation Research Board*, Washington, DC.
60. Masad, E. A. and Muhunthan, B. (1998). "Permeability of Two Dimensional Simulated Soil Microstructure," *Society of Engineering Science 35th Annual Technical Meeting*, Pullman, WA.

61. Shashidhar, N., Masad, E., Dou, X., Butler, J., Davies, R., Harman, T., Romero, P. (1998). "Simulation, Imaging and Mechanics of Asphalt Pavements, a new approach," *Peterson Asphalt Research Conference, 35th Annual meeting*, Laramie, WY.
62. Masad, E. A. (1998). "Image Analysis of Asphalt Concrete," *The Asphalt Institute*, Lexington, KY.
63. Masad, E. A. and Muhunthan, B., and Shashidhar, N. (1997). "Image Analysis of Asphalt Concrete Microstructure," *Turner-Fairbank Highway Research Center, Federal Highway Research Center*, McLean, VA.
64. Muhunthan, B. and Masad, E.A. (1997). "Fabric Effects on the Yield and Plastic Stress-Strain Behavior of Clays," *Sixth International Symposium on Plasticity and its Current Applications Conference*, Juneau, AL.
65. Masad, E. A. and Muhunthan, B., (1996). "Computer Simulation of Anisotropic Porous Soil Microstructure," *Fifth Northwest Regional Geotechnical and Pavements Conference*, Seattle, WA.
66. Masad, E. A. and Muhunthan, B., (1996). "Fabric Effect on the Yield Behavior of Soils," *The Fifth Northwest Regional Geotechnical and Pavements Conference*, Seattle, WA.
67. Masad, E. A. and Muhunthan, B., (1995). "Soil Structure Characterization Techniques," *The 6th ACBM/NIST Computer Modeling Workshop*, Gaithersburg, MD.
68. Masad, E. A. and Taha, R., (1994). "Finite Element Analysis of Temperature Effects on Plain Jointed Concrete Pavements," *The Fourth Northwest Regional Geotechnical and Pavements Conference*, Pullman, WA.

Technical Reports:

1. Kassem, E, Scullion, T., Masad, E., Chowdhury, A., Liu, W., Estakhri, C., and Dessouky. (2012). *Comprehensive Evaluation of Compaction of Asphalt Pavements and Development of Compaction Monitoring System*, Report Number 0-6992-2, Texas Transportation Institute, Texas A&M University, College Station, TX.
2. Masad, E., Rezaei, A., Chowdhury, A., and Freeman, T. (2010). *Field Evaluation of Asphalt Mixture Skid Resistance and Its Relationship to Aggregate Characteristics*, Report Number 0-5627-2, Texas Transportation Institute, Texas A&M University, College Station, TX.
3. Abu Al-Ru, R., Masad, E., and Graham, M. (2010). *Physically Based Model for Predicting the Susceptibility of Asphalt Pavements to Moisture-Induced Damage*, Final Report submitted to Southwest University Transportation Center, Report # SWUTC/10/476660-0012-1.
4. Masad, E., Freeman, T., Rezaei, A., and Chowdhury, A. (2010). *Aggregate Resistance to Polishing and Its Relationship to Skid Resistance*, Report Number 0-5627-S, Texas Transportation Institute, Texas A&M University, College Station, TX.
5. Masad, E., Rezaei, A., Chowdhury, A., and Harris, J. P. (2010). *Predicting Asphalt Mixture Skid Resistance based on Aggregate Characteristics*, Report Number 0-5627-1, Texas Transportation Institute, Texas A&M University, College Station, TX.

6. Abu Al-Rub, R.K., Masad, E.A., Huang, C.W. (2009). *Improving the Sustainability of Asphalt Pavements through Developing a Predictive Model with Fundamental Material Properties*, Final Report submitted to Southwest University Transportation Center, Report # SWUTC/08/476660-0007-1.
7. Howson, J., Bhasin, A., Masad, E., Lytton, R., and Little, D. (2009). *Development of a Database for Surface Energy of Aggregates and Asphalt Binders*, Report Number 5-4524-01-1, Texas Transportation Institute, Texas A&M University, College Station, TX.
8. Masad, E., Kassem, E., Chowdhury, A., and You, Z. (2009). *A Method for Predicting Asphalt Mixture Compactability and Its Influence on Mechanical Properties*, Report Number 0-5261-2, Texas Transportation Institute, Texas A&M University, College Station, TX.
9. Masad, E., Kassem, E., Chowdhury, A. (2009). *Application of Imaging Technology to Improve the Laboratory and Field Compaction of HMA*, Report Number 0-5261-1, Texas Transportation Institute, Texas A&M University, College Station, TX.
10. Abdallah, I., Mahmoud, E., Nazarian, S., and Masad, E. (2008). *Quantifying the Role of Coarse Aggregate Strength on Resistance to Load in HMA for Blended Aggregates*, Report Number 0-5268-3, University of Texas at El Paso, El Paso, TX.
11. Alvarado, C., Mahmoud, E., Abdalla, I., Masad, E., Nazarian, S., Tandon, V, and Button, J. (2007). *Feasibility of Quantifying the Role of Coarse Aggregate Strength on Resistance to Load in HMA*, Report Number 0-5268-1, University of Texas at El Paso, El Paso, TX.
12. Howson, J., Masad, E., Bhasin, A., Castelo Branco, V., Arambula, E., Lytton, R., and Little, D. (2007). *System for the Evaluation of Moisture Damage Using Fundamental Material Properties*, Report Number 0-4524-1, Texas Transportation Institute, Texas A&M University, College Station, TX.
13. Little, D., Masad, E., Kim, Y., Jayawickrama, P. W., and Yildirim, Y. (2007). "Long Term Research on Bituminous Coarse Aggregates," Report Number 0-1708-S, Texas Transportation Institute, Texas A&M University, College Station, TX.
14. Masad, E., Luce, A., and Mahmoud, E. (2006). *Implementation of AIMS in Measuring Aggregate Resistance to Polishing, Abrasion and Breakage*, Report Number 5-1707-03-1, Texas Transportation Institute, Texas A&M University, College Station, TX, College Station, TX.
15. Masad, E. (2005). *Aggregate Imaging System (AIMS): Basics and Applications*, Report Number 5-1707-01-1, Texas Transportation Institute, Texas A&M University, College Station, TX.
16. Dessouky, S., Masad, E., Little, D. N. (2005). *Mechanistic Model to Predict the Impact of the Aggregate Matrix on the Permanent Deformation of Asphalt Mixtures*, Report Number 0-1707-6, Texas Transportation Institute, Texas A&M University, College Station, TX.
17. Sukhwani, R., Little, D., and Masad, E. (2006). *Sensitivity of HMA Performance to Aggregate Shape Measured Using Conventional and Image Analysis Methods*, Report Number 0-1707-5, Texas Transportation Institute, Texas A&M University, College Station, TX.
18. Howson, J., Masad, E., Bhasin, A., Castelo Branco, V., Arambula, E., Lytton, R., and Little, D. (2006). *Application of Surface Energy Measurements to Evaluate Moisture Susceptibility of*

- Asphalt and Aggregates*, Report Number 0-4524-S, Texas Transportation Institute, Texas A&M University, College Station, TX.
19. Lytton, R. L., Masad, E., Zollinger, C., Bulut, R., and Little, D. (2005). *Measurements of Surface Energy and Its Relationship to Moisture Damage*, Report Number 0-4524-2, Texas Transportation Institute, Texas A&M University, College Station, TX.
 20. Masad, E., Al-Rousan, T., Button, J., Little, D., and Tutumluer, E. (2005). *Test Methods for Characterizing Aggregate Shape, Texture and Angularity*, NCHRP 4-30A Final Report, Report Number 555, National Cooperative Highway Research Program, National Research Council, Washington, D.C.
 21. Bhasin, A., Button, J. W., Chowdhury, A., Masad, E. (2004). *Analysis of South Texas Aggregates for Use in Hot Mix Asphalt*, Report Number 0-4203-4, Texas Transportation Institute, Texas A&M University, College Station, TX.
 22. Masad, E., Little, D., Tashman, L., Saadeh, S., Al-Rousan, T., Sukhwani, R. (2003). *Evaluation of Aggregate Characteristics Affecting HMA Concrete Performance. Final Report of ICAR 203 Project*, The Aggregate Foundation of Technology, Research, and Education, VA., 204 pp.
 23. Masad E. (2003). *The Development of A Computer Controlled Image Analysis System for Measuring Aggregate Shape Properties*. NCHRP-IDEA Project 77 Final Report, Transportation Research Board, Washington, DC.
 24. Saadeh, S., and Masad, E. (2002). *Comparative Analysis of Axial and Shear Moduli of Asphalt Mixes*, Final Report Submitted to the Federal Highway Administration and the Asphalt Institute, Washington Center for Asphalt Technology, Pullman, WA (WSU/WCAT 01-3), 177 pp.
 25. Masad, E., James, L. (2001). *Implementation of High Performance Concrete in Washington State*, Washington State Department of Transportation, Report Number WA-RD 530.1, Olympia, WA, 122 pp.
 26. Masad, E., Papagiannakis, T. (2001). *Properties of Furfural Modified Binders*, Final Report Submitted to the Advanced Resin Systems, Washington Center for Asphalt Technology, Pullman, WA (WSU/WCAT 01-4), 24 pp.
 27. Masad, E., Olcott, D., and Tashman, L. (2001). *Correlation of Imaging Shape Indices of Fine Aggregate with Asphalt Mix Performance*, Final Report Submitted to the Federal Highway Administration and the Asphalt Institute, Washington Center for Asphalt Technology, Pullman, WA (WSU/WCAT 01-3), 187 pp.
 28. Masad, E., and Tashman, L. (2001). *Internal Structure Analysis of Asphalt Mixes to Improve the Simulation of Superpave Gyrotory Compaction to Field Conditions*, Final Report Submitted to the Federal Highway Administration and the Asphalt Institute, Washington Center for Asphalt Technology, Pullman, WA (WSU/WCAT 01-2), 187 pp.
 29. Masad, E., and Somadevan, N. (2001). *Experimental and Analytical Methods for Quantifying the Strain Distribution in Asphalt Mixes and its Effects on the Mechanical Response*, Final Report Submitted to the Federal Highway Administration and the Asphalt Institute, Washington Center for Asphalt Technology, Pullman, WA (WSU/WCAT 01-1), 120 pp.

30. Kose, S., Guler, M., Bahia, H., and Masad, E. (1999). *Evaluation of the Role of Non-Linear Visco-elastic Behavior of Asphalt Binders in Defining Mixture Behavior*, Federal Highway Administration, The Office of Technology Applications, Washington, D.C., 30 pp.
31. Masad, E., Somadevan, N., Bahia, H. Kose, S. (1999). *Experimental Evaluation Of Strain Distribution in Asphalt Mixes*, Federal Highway Administration, The Office of Technology Applications, Washington, D.C., 29 pp.
32. Masad, E.A., Muhunthan, B., and Shashidhar, N. (1997). *Image Analysis of Asphalt Concrete Microstructure*, Report to the Division of Engineering and Special Projects at Turner Fairbank Highway Research Center, McLean, VA (WSU-CE-97/1), 25 pp.
33. Masad, E. A. and Muhunthan, B. (1996). *Microstructure and Transport Properties of Soils II. Computer Simulation of Soil Structure*, Report to the National Science Foundation, Washington DC (WSU-CE-96/1), 72 pp.
34. Masad, E. A. and Muhunthan, B. (1995). *Microstructure and Transport Properties of Soils I. Soil Structure Characterization Techniques*, Report to the National Science Foundation, Washington DC (WSU-CE-95/2), 42 pp.

Research Fellows:

Dr. Emad Kassem (Ph.D., Texas A&M University, USA); January 2009 – present.

Dr. Srinath Iyengar (Ph.D., Cambridge University, UK); May 2009 – present.

Dr. Loujaine Mehrez (Ph.D University of Southampton); May 2012 – present.

Dr. Zhengrong Zhang (Ph.D. Yokohama National University); May 2012 – present.

Dr. Reginald Kogbara (Ph.D., Cambridge University, UK); April 2012 – present.

Mr. Mohammed Sadeq (M.Sc University of Manchester); February 2012-present.

Dr. Chien-Wei Huang (Ph.D., Texas A&M University, USA); January 2009 – August 2011.

Ms. Ana Rodriguez (B.Sc., Universidad Simon Bolivar, Venezuela); May 2010 – June 2011.

Graduate Students: († Co-advisor)

Ph.D. Committee Chair

Laith Tashman; Doctor of Philosophy; December 2003
(Associate Professor, University of Jordan, Jordan)

Ala Abbas[†]; Doctor of Philosophy, August 2004
(Associate Professor, University of Akron, USA)

Aslam Al-Omari; Doctor of Philosophy, December 2004
(Assistant Professor, King Saud University, Saudi Arabia)

Taleb Al-Rousan; Doctor of Philosophy, December 2004
(Assistant Professor, Hashemite University, Jordan)

Samer Dessouky; Doctor of Philosophy, May 2005
(Assistant Professor, University of Texas at San Antonio, USA)

Shadi Saadeh; Doctor of Philosophy, December 2005
(Assistant Professor, California State University at Long Beach, USA)

Edith Arambula; Doctor of Philosophy, May 2007
(Associate Transportation Scientist, Texas Transportation Institute, Texas A&M University, USA)

Chien-Wei Huang; Doctor of Philosophy, December 2008
(Post Doctoral Fellow, Zachry Department of Civil Engineering, Texas A&M University, USA)

Emad Kassem; Doctor of Philosophy, December 2008
(Associate Transportation Scientist, Texas Transportation Institute, Texas A&M University, USA)

Enad Mahmoud; Doctor of Philosophy, May 2009
(Assistant Professor, Department of Civil Engineering and Construction Management, Bradley University, USA)

Silvia Caro; Doctor of Philosophy, December 2009
(Assistant Professor, Universidad de Los Andes, Colombia).

Arash Rezaei; Doctor of Philosophy, December 2010.
(Postdoctoral Research Fellow, University of California-Davis, USA).

Saradhi Koneru⁺; Doctor of Philosophy, August 2010
(Postdoctoral Research Fellow, University of Pittsburgh, USA).

Masoud Darabi⁺; Doctor of Philosophy, August 2011.
(Postdoctoral Research Fellow, Texas A&M University, USA).

Jonathan Howson; Doctor of Philosophy, (August 2011)

Arif Chowdhury; Doctor of Engineering, (In Progress)

Maryam Shakiba⁺; Doctor of Philosophy, (In Progress)

Taesun You⁺; Doctor of Philosophy, (In Progress)

Ahmed Awad; Doctor of Philosophy (In Progress)

Husam Sadeq⁺; Doctor of Philosophy, University of Liverpool, United Kingdom (In Progress).

Daniel Castillo⁺; Doctor of Philosophy, University of Los Andes, Colombia (In Progress).

Masters Committee Chair

Niranjanan Somadevan; Master of Science, May 2000

Laith Tashman; Master of Science, December 2000

Lisa James; Master of Science, May 2001

Samer Dessouky; Master of Science, December 2001

Thomas Fletcher; Master of Science, May 2002

Shadi Saadeh; Master of Science, May 2002

Chandan Chandan⁺; Master of Science, August 2002

Brain Bayne; Master of Science, August 2003

Adhara Castleblanco; Master of Science, August 2004

Corey Zollinger; Master of Science, May 2005

Manjula Bathina; Master of Science, May 2005

Emad Kassem; Master of Science, August 2005

Jeremy McGahan; Master of Science, December 2005

Dennis Gatchalian; Master of Science, December 2005

Enad Mahmoud; Master of Science, December 2005

Jonathan Howson; Master of Engineering, December 2006

Anthony Luce; Master of Science, December 2006

Saradhi Koneru; Master of Science, Mechanical Engineering, December 2006

Harsha Nagarajan; Master of Engineering, August 2008.

Michael Graham⁺; Master of Science, May 2009.

Andrew Muras⁺; Master of Science, December 2009.

Leslie Gates; Master of Science, May 2010.

Pedro Soares⁺; Master of Science, August 2010.

Sarah Khorasani; Master of Science, Mechanical Engineering (In Progress).

Boback Parsaei; Master of Science, (In Progress).

Ph. D. Committee Member (Underlined denotes external committee member)

Omar Al-Hattamleh; Doctor of Philosophy; December 2003

Shafiuqe Khan; Doctor of Philosophy; Mechanical Engineering, December 2003

Dae-Wook Park; Doctor of Philosophy; December 2003

Injun Song; Doctor of Philosophy; August 2004

Sung-Hee Kim; Doctor of Philosophy; August 2004

Haouaoui, Mohammed; Doctor of Philosophy, Mechanical Engineering, December 2005.

Amit Bhasin; Doctor of Philosophy; May 2006

Parag Ravindran; Doctor of Philosophy; Mechanical Engineering, August 2006

Qiu Yunfeng; Doctor of Philosophy; Nanyang Technological University, Singapore, August 2006.

Musaed Al-Thubaiti; Doctor of Philosophy; Chemical Engineering, December 2007.

S. Y. Choi; Doctor of Philosophy; Electrical Engineering, August 2007.

Richard Taylor; Doctor of Philosophy, Civil Engineering, University of Nottingham, United Kingdom, December 2007.

M. Ahn, Doctor of Philosophy in Civil Engineering, August 2008.

Veronica Castelo Branco; Doctor of Philosophy, December 2008.

Reza Ashitani; Doctor of Philosophy; August 2009.

Arwa Rabie; Doctor of Philosophy, Chemical Engineering, December 2008.

Allex Alvarez Lugo; Doctor of Philosophy, December 2009.

Sun-Myung Kim; Doctor of Philosophy, Civil Engineering, December 2009.

Kamilla Vasconcelos; Doctor of Philosophy, Civil Engineering, December 2009.

Nikompon Prapaitrakul; Doctor of Philosophy; Chemical Engineering, December 2009.

Hao Wang; Doctor of Philosophy; Civil Engineering, University of Illinois at Urbana-Champaign, USA, March 2011.

Cor Kasbergen; Doctor of Philosophy; Structural Mechanics, Civil Engineering; Delft Technical University, The Netherlands (In Progress).

Masters Committee Member

Michael Woodworth; Master of Science, December 1998

Teresa Ann Gilman; Master of Science, December 1999

Kenneth Cecil; Master of Science, May 2000

Maheswaran Raveendra; Master of Science, May 2000

Anthony Coyne; Master of Science, August 2000

Dana Olcott; Master of Science, May 2001

Ala Abbas; Master of Science, May 2001

Amit Bhasin; Master of Engineering, August 2003

Deepak Chakravarthy; Master of Science, Petroleum Engineering, August 2004

Aravind Nair; Master of Engineering, Mechanical Engineering, August 2006

Kamran Khan; Master of Science, Mechanical Engineering, December 2006

Cesar Alvarado; Master of Science, University of Texas at El Paso, December 2006

Saad Al-Sobhi; Master of Science; Chemical Engineering, December 2007.

S. B. Shah; Master of Science; Mechanical Engineering, August 2008.

M. Muddasani; Master of Science; Mechanical Engineering, August 2008.

R. Bommavaram; Master of Science, Civil Engineering, August 2008.

N. Joshi; Master of Science; Mechanical Engineering, August 2008.

Chin K. Leung; Master of Science, Civil Engineering, May 2009.

Bryan Tyson; Master of Science; Civil Engineering, December 2009.

Abu Nayeem Faruk; Master of Science; Civil Engineering, December 2009.

Ahmad Ashour; Master of Science; Civil Engineering, (In Progress).

Mohammed Muftah Al Aryani; Civil Engineering, United Arab Emirates University, UAE (In Progress).

CONSULTING:

- Qatar Public Works Authority, Qatar.
- Private Engineering Office, Qatar.
- Ferrovia Group Company, Austin-Texas and Spain.
- Civil Materials Solutions, Bryan, TX.
- PBS&J Aviation Services, Houston, TX.

- DMJM Aviation, Houston, TX.
- Pine Instruments, Grove City, PA.
- Florida Department of Transportation, Gainesville, FL.
- Texas Transportation Institute, College Station, TX.
- National Center for Asphalt Technology, Auburn, AL.
- University of Massachusetts-Dartmouth, MA.
- University of Texas-Austin, TX.
- Asphalt Institute, Lexington, KY.
- Turner-Fairbank Highway Research Center, McLean, VA.
- Washington State Department of Transportation, Kent, WA.

SERVICE:

University Services:

Texas A&M University

- Member of the Promotion and Rolling Contract Committee of the Mechanical Engineering Program of Texas A&M at Qatar (3/11-12/11).
- Chair of the Promotion and Rolling Contract Committee of the Mechanical Engineering Program of Texas A&M at Qatar (7/10-12/10).
- Member of the Engineering Promotion and Rolling Contract Committee of Texas A&M at Qatar (7/10-present).
- Chair of the Search Committee of the Associate Dean for Academic Affairs of Texas A&M at Qatar (1/10-7/10).
- Chair of the Task Force for Developing the Engagement Part of the Strategic Plan of Texas A&M University at Qatar (9/09-9/09).
- Member of the Search Committee for Director of Finance at Texas A&M at Qatar (10/10-12/10).
- Member of the Space Committee of Texas A&M at Qatar (10/10-present).
- Member of the Executive Committee, South West University Transportation Center (6/06 – 8/09).
- Chair, Materials Faculty Search Committee, Department of Civil Engineering, (10/05 – 5/06).
- Member, Tenure and Promotion Committee, Zachry Department of Civil Engineering, (10/05 – 9/07).
- Member, Structures Faculty Search Committee, Department of Civil Engineering, (1/05-5/05).
- Member, Graduate Studies Task Force, Department of Civil Engineering, (10/05 – 5/06).
- Undergraduate Advisor, Department of Civil Engineering, (1/03-8/07).
- Member of the ABET Accreditation Committee, Department of Civil Engineering, (7/03-12/04).
- Member of the Undergraduate Curriculum Committee, Department of Civil Engineering, (10/04-7/07).
- Member of the Website Committee, Department of Civil Engineering, (1/04-7/07).
- Coordinator for the Materials Group, Department of Civil Engineering, (1/05 – 8/07).
- Graduate Advisor for the Materials Group, Department of Civil Engineering, (1/03 – 8/07).

Washington State University

- Member of the ABET Accreditation Committee, Department of Civil Engineering, (8/01-8/02).
- Co-founder of the Washington Center for Asphalt Technology (WCAT), (2/99).
- Member, Scholarship Committee, Department of Civil and Environmental Engineering, (1/00 – 12/02).

- Member, Geotechnical Faculty Search Committee, Department of Civil and Environmental Engineering, (1/00 – 6/00).
- Member, Lab and Space Committee, Department of Civil and Environmental Engineering, (1/00 – 8/00).
- Member, Computing Committee, Department of Civil and Environmental Engineering, (9/98 – 8/00).
- Member, Immigration Specialist Search Committee, (8/99 – 1/00).
- Graduate Program Coordinator for the Pavement/Geotechnical group, Department of Civil and Environmental Engineering, (9/98 - 9/99).
- Chair of the Ninth Research Exposition Committee, Graduate School, Washington State University (5/96 - 5/97).

Journal Editorial Boards:

- Associate Editor, Journal of Materials in Civil Engineering, ASCE (1/03-Present).
- Associate Editor, International Journal of Pavement Engineering (12/07-present).
- Editorial Board Member, Journal of Mechanics of Advanced Materials and Structures (9/09-present).
- Editorial Board Member, International Journal of Pavement Research and Technology (11/07-present).
- Editorial Board Member, International Journal of Road Materials and Pavement Design (11/04-present).
- Editorial Board Member, International Journal of Pavement Engineering (11/04-11/07).
- Guest Editor of Special Issues of the Following Journals:
 - International Journal of Pavement Engineering.
 - International Journal of Geomechanics in Civil Engineering.
 - International Journal of Road Materials and Pavement Design.
 - Journal of Materials in Civil Engineering.
 - Journal of Computing in Civil Engineering.

National and International Committees:

- Chairman of AFK50(1) Subcommittee of the Transportation Research Board (11/07-5/11).
- Chairman of the Pavements Committee of the Geo Institute, ASCE. (8/03 – 10/06).
- Vice Chairman of the Pavements Committee of the Geo Institute, ASCE. (1/99 – 7/03).
- Member of the Technical Committee of GeoShanghai International Conference, Shanghai, China (June 2-4, 2006).
- Member, Mixture Expert Task Group, Federal Highway Administration, (1/06-present).
- Member of the Organizing Committee of the International Gulf Conference on Roads, November 10-13, 2008, Doha, Qatar.
- Member of International Advisory Committee for GeoX'06 Workshop, Aussois-France, (October 5-7, 2006).
- Member of the Organizing Committee of The First Middle East International Conference on Advances in Civil, Mechanical And Material Engineering, Amman-Jordan, (01/03-05/05).
- Member of the Technical Advisory Committee of the International Center for Aggregate Research (ICAR), (5/01 – present).
- Member of Steering Committee for the ASTM Symposium on Performance Tests for Hot Mix Asphalt (HMA) including Fundamental and Empirical Procedures, (8/03-5/05).
- Member of the Bituminous Materials Committee of the Construction Institute, ASCE, (1/99 – present).
- Member of the Pavements Committee of the Transportation and Development Institute, ASCE, (8/03 – present).

- Member of the Committee on Constitutive Modeling of Asphaltic Materials, International Society for Asphalt Pavements, (1/1/04-present).
- Member of the Inelastic Committee of the Engineering Mechanics Division, ASCE, (7/01-present).
- Member of the TRB Committee AFK40, (2/01 – present).
- Member of the TRB Committee AFP70, (1/01 – present).
- Member of the TRB Committee AFK50, (2/03 – 5/12).
- Regular Reviewer for the Civil and Mechanical Systems Division of the National Science Foundation, (8/00 – present).

Workshop, Symposium and Session Organizer and Co-organizer:

- A Workshop on Engineering Ethics for a Globalized World, October 23-25, 2011, Doha, Qatar.
- A Workshop on Professional Ethics in a Globalized World: Towards a Joint East-West Perspective, May 10-12, 2011, Doha, Qatar.
- Second Annual Meeting of the International Institute for Multifunctional Materials for Energy Conversion, February 20-21, 2011, Doha, Qatar.
- Second Symposium on Advances in Materials Science and Engineering, February 22, 2011, Doha, Qatar.
- First Symposium on Advances in Materials Science and Engineering, February 18, 2010, Doha, Qatar.
- Fourth International Gulf Conference on Roads, Efficient Pavements and Transportation Systems: Characterization, Mechanism, Simulation, and Modeling, November 11-13, 2008, Doha, Qatar.
- A Session on Cracking in Asphalt Pavements, RILEM Pavement Cracking, June 16-19, 2008, Chicago, Illinois.
- A Session on Asphaltic and Soil Materials, the 3rd IMS International Conference on Applications for Traditional and High Performance Materials in Harsh Environment, January 23-24, Sharjah, United Arab Emirates.
- A Session on Experimental Laboratory Material Characterization, Advanced Characterization of Pavement and Soil Engineering Materials Conference, June 20-22, 2007, Athens, Greece.
- Second International Workshop on Moisture Induced Damage of Asphalt Mixes, September 16-19, 2007, Texas A&M University, College Station, TX.
- Mechanics and Characterization of Infrastructure Materials Symposium 44th Annual Technical Meeting of the Society of Engineering Science Conference, October 21-24, 2007, College Station, TX.
- Mechanics of Flexible Pavements Symposium, Sponsored by Inelastic Committee of the Engineering Mechanics Division, and The Pavement Committee of the Geo-Institute, The 15th U.S. National Congress on Theoretical and Applied Mechanics, June 25-30, 2006, University of Colorado at Boulder, Boulder, Colorado.
- First International Workshop on Moisture Induced Damage of Asphalt Mixes, November 22-25, 2005, Delft Technological University, The Netherlands.
- R. Lytton Pavement Mechanics Symposium, Sponsored by Inelastic Committee of the Engineering Mechanics Division, and The Pavement Committee of the Geo-Institute, The 2005 Joint ASCE/ASME/SES Conference on Mechanics and Materials, June 1-3, Baton Rouge, Louisiana.
- Mechanics of Geomaterials Symposium, International Conference on Computational and Experimental Engineering and Sciences, July 26 – 29, 2004, Madeira, Portugal.
- A Session on Case Studies and Modeling of Water flow Processes, Geo Jordan 2004: Advances in Geotechnical Engineering with Emphasis on Dams, Highway Materials, and Soil Improvement, July 12-15, Irbid, Jordan.

- Pavement Mechanics Symposium, Sponsored by Inelastic Committee of the Engineering Mechanics Division, and The Pavement Committee of the Geo-Institute, Engineering Mechanics Conference, June 13-16, 2004, University of Delaware, Newark, DE.
- Pavement Mechanics Symposium, Sponsored by Inelastic Committee of the Engineering Mechanics Division, and The Pavement Committee of the Geo-Institute, Engineering Mechanics Conference, July 16-18, 2003, University of Washington, Seattle, WA.
- A Session on Automated Methods for Measuring Aggregate Shape Properties, Sponsored by TRB Committees A2J03 and A2D03, Transportation Research Board Meeting 2002, Washington, DC.
- Pavement Mechanics Symposium, Sponsored by Inelastic Committee of the Engineering Mechanics Division, and The Pavement Committee of the Geo-Institute, Engineering Mechanics Conference, June 2-5, 2002, Columbia University, New York, NY.

Journal Reviewer:

- International Journal for Numerical and Analytical Methods in Geomaterials.
- International Journal of Plasticity.
- Journal of Materials in Civil Engineering, ASCE.
- Journal of Engineering Mechanics, ASCE.
- Journal of Transportation Engineering, ASCE.
- Journal of Computing in Civil Engineering, ASCE.
- Journal of Performance of Constructed Facilities, ASCE.
- Computer Aided Civil and Infrastructure Engineering.
- Journal of the Transportation Research Board.
- Journal of the Association of Asphalt Paving Technologists.
- International Journal of Geomechanics, ASCE.
- International Journal of Pavement Engineering.
- International Journal of Road Materials and Pavement Design.
- Journal of Testing and Evaluation, ASTM.
- Construction Materials
- Building and Construction Materials